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(71)(72) Applicant and Inventor: WONG, Charles [US/US]; 14250 Miranda Road, Los Altos Hills, CA 94022 (US).

(74) Agents: URE, Michael, J. et al.; Burns, Doane, Swecker & Mathis, L.L.P., P.O. Box 1404, Alexandria, VA 22313–1404 (US).

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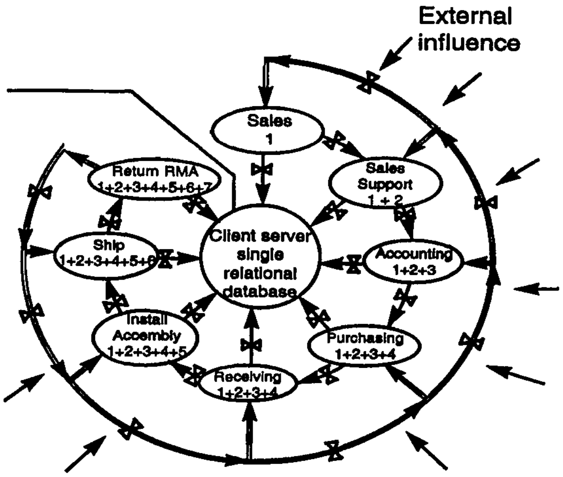

(57) Abstract

The present invention, generally speaking, provides software that enables end–to–end, business–to–business Web commerce (Web business, or e–business) and that automates to the greatest degree possible, in a unified and synergistic fashion and using best proven business practices, the various aspects of running a successful and profitable business. Web business and business automation are both greatly facilitated using a computing model based on a single integrated database management system (DBMS) with intrinsic data synchronization that is either Web–enabled or provided with a Web front–end. The Web provides a window into a "seamless" end–to–end internal business process. The effect of such integration on the business cycle is profound, allowing the sale of virtually anything in a transactional context (goods, services, insurance, subscriptions, etc.) to be drastically streamlined.

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INTEGRATED BUSINESS-TO-BUSINESS WEB COMMERCE AND BUSINESS AUTOMATION SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to business-to-business Web commerce and to business automation systems.

2. State of the Art

Web commerce may be defined as the use of a computer network, such as the Internet, to do business, such as buy and sell products or services. Although Web commerce is still in its infancy, relatively speaking, Web commerce is predicted by some to soon become the dominant mode of business practice. Web commerce allows business to move much more quickly, without the burden and cost of paperwork.

Despite the promise of Web commerce, current Web commerce software is typically of very limited capability. Most Web commerce is consumer-oriented rather than business-oriented. The tacit assumption is that the purpose of the Internet should be to enrich people's personal lives more than to enable business to move at light speed. Furthermore, typically each transaction is treated in isolation. No on-going course of business is assumed or facilitated.

Material management functions such as procurement represent a substantial expense and burden for medium and large businesses. Purchases are typically subject to approval at multiple levels. In the case of the purchase of a computer, for example, an employee might submit a purchase request to the employee's supervisor, who might approve the request and forward it to the MIS (Management Information Systems) department, which might approve the request and forward it to accounting for budgetary approval. The real cost of such a process is estimated to be as much as $100 per purchase request. Furthermore, the time required for such a process to be completed may be weeks or months. In the meantime, productivity may suffer.

Purchasing, moreover, is only part of the larger problem of material management. Once materials have been procured, typically they must be tagged, tracked and accounted for, both physically and in accounting terms such as depreciation, etc. The latter activities may either be conducted in an organized fashion, often at considerable expense, or haphazardly, with marginal effectiveness.

Existing Web commerce software is likewise fraught with problems for the selling company. When an order is placed through the Web, it typically results in a fax or email, information from which must be manually entered into an internal sales system that may or may not be linked to other closed systems such as accounting, human resources, purchasing, assembly, etc. Even if these various systems are linked in some fashion, such linking is fixed, not responsive to change. Hence, once an entry is made, depending on the degree of automation, additional manual intervention may be required to achieve the desired final result, e.g., ship a product to a customer. The purchaser is typically unable to determine the status of an order without placing a call or sending an email. Moreover, order fulfillment is again only a part of the larger problem of total customer satisfaction (which is in turn only a part of the larger problem of running a successful, profitable business). Returns are bound to occur and must typically be handled manually, typically by a Return Merchandise Authorization (RMA) or traffic department. Also, some fraction of shipments are bound to be lost, damaged or mis-shipped. Related insurance claims typically must also be handled manually both by the traffic and accounting departments. Even though the foregoing activities are closely related functionally, the mechanisms for handling these activities, whether manual or automated, are often *ad hoc*, because of the unanticipated, non-routine, but inevitable nature of such events.

On a business-wide scale, the same is largely true: the various activities of the business, while they may be separately automated, are not automated in a unified, synergistic fashion. Automation is typically performed by automating, testing and implementing fixed, linear work flows for a fixed environment, resulting in systems that are not adaptable to the real, changing business environment. Most often, different departments each have separate database systems with the departments being linked by a local- or wide-area network. A person in one department obtains information from a different department by sending an email and requesting a report. Referring more particularly to Figure 1, in accordance with a typical model of business automation, various departments (e.g., sales, sales support, customer service, accounting, purchasing, receiving, engineering, assembly, shipping) are separately automated but linked together by a computer network (e.g. LAN, WAN). Each department interfaces to multiple different departments in an essentially manual fashion but using modern electronic communications tools—phone, fax, email, computer hardcopy, etc. Comparison of the resulting overall business process to a Rube Goldberg invention is apt, if mildly exaggerated. The process entails repeated transmission of duplicate information to different departments and repeated transmission of additional information and instructions to different departments on an as-needed basis. The party transmitting the information controls the amount and quality of information conveyed. The party receiving the information has no control over the information or the quality of the instructions received but rather is entirely dependent on the party transmitting the information. Duplication occurs both within departments and between departments. An external influence to the system (a call from a customer or vendor, a new customer account, a ruffled employee) can and often does cause a flurry of activities, but often produces less-than-commensurate positive results because of the inherent inefficiency of the system. The process, because it is ill-defined, is not easily reversible when an error has been made. In most systems, mistakes must be propagated to the end of a work flow before reversal can occur.

The foregoing model results in the fragmentation of information— "the right hand does not know what the left hand is doing." Information is transported from one place to another, either in hardcopy form, necessitating re-entry, or in such electronic form as to require substantial massaging, and with substantial latency such that by the time the information is to be used it is already outdated. A business executive, for lack of readily-available, accurate, verifiable information *in usable form*, must then rely heavily on subordinates to obtain a picture (hopefully accurate) of what is happening inside the company. Considerably employee time may be spent gathering historical data to satisfy the need for management information. The same factors that hamper management performance may also cause performance at lower levels within the company to suffer. Employees may lack timely information regarding critical tasks that need to be performed. For lack of timely information regarding returns, for example, or some other aspects of operations, accounting personnel may pay invoices that should in fact not be paid.

The lack of readily-available, verifiable information in usable form is most pronounced in relation to financial information. In the case of a sales company doing a substantial volume of business, for example, preparation of a state sales tax return may take ten man-days or more. An audit may take a similar amount of preparation. Closing the books on an accounting period is itself an arduous task. The time requirements and challenges posed by month-end and year-end closings are all-too-familiar to virtually all in-house accountants. Despite these heroics, the inherent latency of the process diminishes the value of the results. A finalized June statement, for example, might be received at the end of July or the beginning of August, hampering the ability to react quickly to changing business conditions. A real-time financial statement is non-existent.

For lack of readily-available, verifiable information in usable form, employee evaluation is often performed more on the basis of perception than objective reality. The appearance of performance then becomes at least as important as real performance. Employee performance and employee morale may suffer as a result.

Numerous "high-power" database application software packages exist in the marketplace, from such industry leaders as SAP, Peoplesoft, BAAN, and Oracle. The solutions of each of these vendors have strengths and weaknesses. SAP, for example, although strong in the area of fixed asset management and financials, does not provide flexible shipping and receiving functions. To automate these functions requires the use of separate software. Furthermore, Web integration is problematic. BAAN is strong in the areas of shipping/receiving, manufacture and assembly, but is limited in the areas of fixed asset management and material handling. In particular, BAAN, SAP, etc. are bound by conventional notions of real inventory—an item must physically be in stock before it can be ordered (as contrasted with the concept of virtual inventory, explained more fully hereinafter). Peoplesoft offers strong human relations functions but is not strong in "back-end" functions. Software packages from Peoplesoft and BAAN are therefore often linked together to provided a more complete solution. Similarly, software from SAP may be linked to software from BAAN. Oracle offers discrete modules for almost all of the functions offered by the other software packages. The modules must be linked together in a laborious process, however, with substantial duplication of data in all modules. None of these software packages have a Web-centric design, nor has any been used to successfully implement an automatic ene-to-end business process, even in large corporations having no lack of resources.

Web-centric "e-business solutions" are offered by Pandesic (Intel and SAP), Actra (Netscape) and other (typically early-stage) companies. In the case of Pandesic, early promotional materials indicate a distinct consumer orientation as opposed to business-to-business. A conventional real inventory model is followed in which product must be warehoused and on-hand in order to allow the product to be ordered. Furthermore, Web operations are segregated from non-Web operations, necessitating duplication. In the case of Actra, a portfolio of commerce software, including legacy application integration modules, are designed to "bridge gaps between enterprises and applications," enabling business-to-business transactions, buyer-side and seller-side procurement, consumer on-line Internet storefronts, and commercial Internet publishing. This "gap-bridging" approach likewise entails substantial duplication.

Dell and Cisco each sells computer and networking equipment directly to consumers over the Web using configuration and order software developed by outside third parties. Business-to-business features, such as invoices, RMAs (particularly automatic "instant" RMAs) are lacking. The software does not provide an end-to-end Web-business solution.

The need for more powerful business solutions is especially apparent in the area of supply-chain management. Currently, demand information is forecast-based and propagates slowly through a supply chain through manual processes. The result is frequent oversupply and undersupply. The power of the Web has not yet been brought to bear on the supply-chain management problem.

A need therefore exists for software that enables end-to-end, business-to-business Web commerce and that automates to the greatest degree possible, in a unified and synergistic fashion, the various aspects of running a successful and profitable business. The present invention addresses this need.

SUMMARY OF THE INVENTION

The present invention, generally speaking, provides software that enables end-to-end, business-to-business Web commerce (Web business, or e-business) and that automates to the greatest degree possible, in a unified and synergistic fashion and using best proven business practices, the various aspects of running a successful and profitable business. Web business and business automation are both greatly facilitated using a computing model based on a single integrated database management system (DBMS) with intrinsic data synchronization that is either Web-enabled or provided with a Web front-end. The Web provides a window into a "seamless" end-to-end internal business process. The effect of such integration on the business cycle is profound, allowing the sale of virtually anything in a transactional context (goods, services, insurance, subscriptions, etc.) to be drastically streamlined. In accordance with one aspect of the invention, business-to-business transaction processing using a database and a database management system is performed by receiving user demand information (or a user "wish list" or expression of interest interest in selected products) electronically; at least partially in response to receiving the user demand information electronically, automatically storing an order record in the database and maintaining the order record in the database throughout a life cycle of the order; and during the life cycle of the order, multiple users each accessing the order record and processing the order to accomplish a respective one of multiple business functions, and creating records related to the order. The life cycle of the order includes an expected period for at least one of reversal, service, and parts order, where reversal includes customer returns, canncellation and correction of improperly fulfilled or mistaken orders, including employee mistakes. The business software provides a Web-based, business-to-business electronic commerce framework that uses the Web as a medium for all parties involved in a transaction (customer, supplier, manufacturer, etc.) within multiple supply-chain tiers to receive up-to-the minute synchronized transaction information relating to any and all facets of the transaction. Information may be disseminated by push (Web broadcast) or pull methods, with a business user exercising information access control.

In the case of a just-in-time product reseller, for example, the business software operates as follows. A comprehensive product list is updated electronically in real time or at regular intervals from various sources (e.g., by file download, over the Web, or from CD or floppy distributions or other media or even manual input). A graphical Web interface allows a user to obtain a quote based on the product list. The quote is assigned a quote number and saved in the DBMS and may be retrieved and viewed at a later date. Based on the quote, a user with appropriate

Web-verifiable authority may place an order on behalf of a company in accordance with a pre-existing *Web-enforceable* agreement with the company. An employee of the seller, using the same DBMS, purchases product to fill the order. When the product is received, information regarding receipt of the product is entered into the DBMS. Orders are assembled, shipped and billed, all using the same DBMS. Customers can retrieve previous quote records and view order and shipment status via the Web. Customer invoices are automatically generated upon shipment but may be modified if necessary by a supervisory user having the requisite authority. When a customer payment is received, details concerning the payment are entered into the DBMS. Vendor invoices and payments are also handled using the DBMS, and both customers and vendors can view payment status—invoice, credit (from returns), etc.—via the Web, allowing paper invoice copies to be dispensed with if desired. Returns are provided for and may be return of an entire piece of equipment or replacement of a warranted component part, and replacements may be electronically tracked. Parts tracking saves employee time that would otherwise be spent responding to customer inquiries, and also contributes to customer satisfaction through the convenient availability of timely information.

Throughout the foregoing process, a period (e.g., off-peak or nightly) update process is performed in which consistency checks are performed and in which accounting information (including sales tax information) is collected, journal entries made, and general-ledger entries posted. When records are edited, they are flagged to be checked during the period update so that adjusting entries may be made if necessary. At any time, the update process may be run and an accounting period closed. Real-time, audit-ready financial information accurate up to the day or up to the hour is available within minutes at the touch of a button without the need for a highly-trained accountant. A novice can facilitate the systematic performance of many functions typically performed by accountants, with periodic review and supervision by an accountant.

Because the DBMS is Web-enabled, given the appropriate privileges, a complete up-to-the-minute view of every aspect of a business is available from anywhere in the world. Telecommuting is greatly facilitated, with its attendant cost savings. Furthermore, factual evaluation of employee performance, whether of a telecommuting employee or an office-based employee, is greatly facilitated by statistical analysis of accumulated historical performance data (tasks, projects, assignments, reports).

Driven by the goals of enabling widespread telecommuting and global cyberspace trading, the single database business process software provides parallel synchronized data access to all users. Users have access to all information given the proper access authority. The system provides built-in assurance of prioritized dynamic workflow and best business practice (the optimum known way that a business process should flow) based on self-correcting business knowledge algorithms. The system draws upon a knowledge base to prevent mistakes anticipated by the software designer as well as mistakes that have occurred in the past and have been corrected for by adding to the knowledge base, which is continually accumulating. The dynamic workflow assures that whatever mistakes may occur are discovered at various stages. The system lists and prioritizes uncompleted work that needs to be followed up. All user activities are tracked, and users are held accountable. Every activity performed by users are tracked statistically. Problem sources may therefore be identified. Precision training and factual performance review are made possible, significantly empowering users in their assignments.

The software provides for business scalability (as opposed to mere data processing scalability), minimizing the growing pains experienced by rapidly growing companies. In growing companies, as the responsibility for a process becomes divided among more and more people, becoming more and more diffuse, communication between group members becomes more and more difficult and the process becomes increasing difficult to manage. The present invention, with dynamic workflow, makes workflow and work quality substantially immune to changes in the number of employees and the experience level of employees. Work discipline and organization is enforced by, and teamwork and communication between users facilitated by, the database. The ease of use of the database system arising from dynamic workflow and the knowledge base incorporated within the system minimizes the need for extensive employee training and allows for flexible employee roles. Business scalability also entails dramatically increased productivity through automated computer assistance, allowing business growth to greatly outstrip personnel growth. One example of business scalability is in the area of purchasing. Orders are grouped for purposes of purchasing such that the number of purchase orders to vendors does not increase as the number of orders received.

Conceptually, the invention allows for the integration and time-scale compression of what have heretofore been largely independent, human-dependent business processes. Business processes have typically been organized into separate business domains, chiefly including a products domain (e.g., engineering, manufacturing, purchasing, shipping, receiving, returns), a payments domain (e.g., accounts receivable, accounts payable), a financial performance domain (e.g, general ledger, financial statements, tax returns) and a personnel domain (e.g., employee evaluation). In accordance with one aspect of the invention, files for the automation of these various business domains are integrated as part of a single database schema within a single database management system run on one or multiple servers. There results a very tight integration of the foregoing activities and other derivatives of those activities such as product forecasting and cash-flow analysis. In particular, a universal financial report and trend report generator provides for general single or multiple General Ledger (GL) account code analysis including sales, cash flow and material.

Time-scale compression of the resulting integrated business automation process is achieved in two ways. First, the single database management system is Web-enabled, providing access anytime, anywhere. Second, triggers within the single database management system propagate activity from one business domain to a succeeding business domain (e.g., from shipping in the products domain to accounts payable in the payments domain) without duplication of human efforts. Data can only be entered once and is not ordinarily allowed to be changed or re-entered. Data entry is guided by a built-in best-practice knowledge base.

The integrated business automation process may be easily modularized if desired by restricting access to only files belonging to selected business domains. Hence, unlike conventional business automation suites that provide separate software modules that may be acquired separately and linked together (with sustantial data duplication), in the case of the present integrated business automation process, a customer receives everything but may only pay for be given access to a subset of files—e.g. AP/AR files. Later the customer may decide to pay for added capabilities. Such a change in capabilities may be readily administered remotely through the Web. In this manner, the customer is able to "pick and choose" the capabilities that the customer wants to use.

An outside Web user may also pick and choose the capabilities that the user wants to use. For example, orders may be placed by phone or fax but tracked via the Web. Or a user may use the Web only to check the amount owed on open invoices. Others user may use the Web from start to finish, to order products, track orders, track payments, etc.

Extensive measures are taken to ensure that the integrated business process is, to the greatest extent possible, error-free. Only a limited number of controlled entry points to the system are provided. At each entry point, entry validation is performed at the time of entry. Because the business process is integrated, validation may be more extensive and hence more effective than in typical systems. A periodic update process is also performed is which checks are made, including cross-checks between records of files belonging to different business domains. The system is in effect a closed system where all entries must balance appropriately. The nightly update is able to catch and flag errors (or possible errors) that may have occurred despite entry validation, including hardware or system errors, software bugs, and human errors. As errors become apparent that have escaped detection by the system, the foregoing mechanisms may be readily revised to prevent future such occurrences. Programmed process intelligence therefore continually increases as errors are detected, flagged, and trouble-shooted so as to add to the wealth of the knowledge base and improve the process methodology. At the same time, dynamic workflow makes possible the re-navigation of existing workflow components.

The integrated processes also automates returns and credits both on the customer side and the vendor side. Returns and credits may be necessitated by user errors that go undetected by the system, by overcharges for freight, or numerous other circumstances. Returns are only one important example of what is more generally a reversal process, or catch-all, for mistakes during work-in-progress and for post-sale activity. Return requests, Return Merchandise Authorizations, credit memos and accounting adjustments may all be handled electronically.

BRIEF DESCRIPTION OF THE DRAWING

The present invention may be further understood from the following description in conjunction with the appended drawing. In the drawing:

Figure 1 is a block diagram illustrating conceptually a conventional business process;

Figure 2 is a block diagram illustrating conceptually an automated business process in accordance with the present invention;

Figure 3 is a generalized block diagram of a system for business-to-business Web commerce in accordance with an exemplary embodiment of the invention;

Figure 4 is an illustration of a starting Web screen display;

Figure 5 is an illustration of a first product categories screen display;

Figure 6 is an illustration of a further product categories screen display;

Figure 7 is an illustration of still a further product categories screen display;

Figure 8 is an illustration of a screen display displaying printer cables;

Figure 9 is an illustration of a shopping basket screen display;

Figure 10 is an illustration of a screen display allowing the user to search for products by manufacturer;

Figure 11 is an illustration of a multi-search screen display;

Figure 12 is an illustration of a core products search screen display;

Figure 13 is an illustration of a core products search results screen display;

Figure 14 is an illustration of a Products Search /PID screen display;

Figure 15 is an illustration of a PID search results screen display;

Figure 16 is an illustration of a PID screen display;

Figure 17 is an illustration of a Products Search/APL screen display;

Figure 18 is an illustration of a Products Search/Previous Quotes screen display;

Figure 19 is an illustration of a quotes search results screen display;

Figure 20 is an illustration of a quote screen display;

Figure 21 is an illustration of a PID maintenance screen display;

Figure 22 is an illustration of an active PIDs screen display;

Figure 23 is an illustration of an APL maintenance screen display;

Figure 24 is a company APL maintenance screen display;

Figure 25 is an illustration of a return request screen display;

Figure 26 is an illustration of an RMA multi-search screen display;

Figure 27 is an illustration of an RMA search results screen display;

Figure 28 is an illustration of an RMA record screen display;

Figure 29 is an illustration of a tracking screen display;

Figure 30 is an illustration of a sales order status screen display;

Figure 31 is an illustration of a sales order search results screen display;;

Figure 32 is an illustration of a Tracking—Return Product and Service Part Status screen display;

Figure 33 is an RMA status search results screen display;

Figure 34 is an illustration of a more detailed RMA status screen display;

Figure 35 is an illustration of a Tracking—Product Purchase History screen display;

Figure 36 is an illustration of a Tracking—Product Return History screen display;

Figure 37 is an illustration of a return history search results screen display displaying search results;

Figure 38 is an illustration of a Reports screen display;

Figure 39 is an illustration of a Back Order Reports screen display;

Figure 40 is an illustration of a Monthly Sales Reports screen display;

Figure 41 is an illustration of a resulting search results screen display;

Figure 42 is an illustration of a Packing Slips screen display;

Figure 43 is an illustration of a resulting search results screen display;

Figure 44 is an illustration of a packing slip screen display displaying a selected packing slip;

Figure 45 is an illustration detailing the authority of various internal users with respect to security parameters in accordance with an exemplary embodiment;

Figure 46 is a diagram of a typical lineage (authority) tree;

Figure 47 is an illustration of a database customer screen display;

Figure 48 is an illustration of a company price list screen display;

Figure 49 is an illustration of one of a series of dialogs used to set Web authority for an employee of a customer;

Figure 50 is an illustration of another of a series of dialogs used to set Web authority for an employee of a customer;

Figure 51 is an illustration of another of a series of dialogs used to set Web authority for an employee of a customer;

Figure 52 is an illustration of another of a series of dialogs used to set Web authority for an employee of a customer;

Figure 53 is an illustration of another of a series of dialogs used to set Web authority for an employee of a customer;

Figure 54 is an illustration of a dialog used to confirm employee information at the conclusion of Web authorization;

Figure 55 is an illustration of the corresponding screen display as shown in Figure 48, following Web authorization;

Figure 56 is a block diagram of a conventional Web commerce computer architecture in which different functions are automated on different computing platforms, necessitating multiple interfaces;

Figure 57 is a block diagram of the present Web commerce computer architecture in which all functions are automated on a single Web-enabled database, necessitating only a single interface;

Figure 58 is an illustration of a partial database schema of one implementation of the system of Figure 3, showing primary files and relationships;

Figure 59 is a block diagram illustrating an automated business process in accordance with an exemplary embodiment of the invention;

Figure 60 is an illustration of a Sales-MWS screen display;

Figure 61 is an illustration of a Quote screen display;

Figure 62 is an illustration of a Products screen display;

Figure 63 is an illustration of a MWS screen display;

Figure 64 is an illustration of a Purchasing view of a PRIS (Purchasing/Shipping/Receiving/Installation) screen display;

Figure 65 is an illustration of a Receiving view of the PRIS screen display;

Figure 66 is an illustration of an Installation view of the PRIS screen display;

Figure 67 is an illustration of a Shipping view of the PRIS screen display;

Figure 68 is an illustration of a PRIS Item Detail screen display;

Figure 69 is an illustration of an Expedite view of the PRIS screen display;

Figure 70 is an illustration of an Ordered Not Received screen display;

Figure 71 is an illustration of a Received Not Shipped screen display;

Figure 72 is an illustration of an Expedite pop-up, allowing expedite status to be set from a MWS screen display;

Figure 73 is an illustration of an RMA screen display;

Figure 74 is an illustration of an Add RMA screen display used to initially create an RMA;

Figure 75 is an illustration of an RMA add records screen display used to add information to an RMA;

Figure 76 is an illustration of an RMA Automatic Request Completion file;

Figure 77 is an illustration of an RMA Automatic Approval Limit file;

Figure 78 is an illustration of a Customer RMA Automatic Approval file;

Figure 79 is an illustration of a Vendor RMA Automatic Approval file;

Figure 80 is an illustration of a Manufacturer RMA Automatic Approval file;

Figure 81 is an illustration of a Web page used to automatically provide a customer with an RMA number in accordance with the foregoing automatic approval process;

Figure 82 is an illustration of a Sales Tax Register screen display, including formulas used to calculate figures to be entered within each line of a sales tax return;

Figure 83 is an illustration of a Customer Invoices screen display;

Figure 84 is an illustration of the Customer Invoices screen display showing collections information within a pop-up window;

Figure 85 is an illustration of the Customer Invoices screen display showing collections information by customer within a pop-up window;

Figure 86 is an illustration of a Customer Payments screen display;

Figure 87 is an illustration of an OverUnderPay screen display;

Figure 88 is an illustration of an OverUnderPay details screen display;

Figure 89 is an illustration of a Vendor Invoices screen display;

Figure 90 is an illustration of an AP Add Invoices screen display;

Figure 91 is an illustration of a Vendor Invoice display;

Figure 92 is an illustration of a Daily Vendor Verification screen display;

Figure 93 is an illustration of a Vendor Payment Register screen display;

Figure 94 is an illustration of an Add Invoices screen display having superimposed thereon a dialog window used to enter the period for a freight bill;

Figure 95 is an illustration of an Accounting Setup defaults screen display;

Figure 96 is an illustration of a display screen used to add an account to a Chart of Accounts file;

Figure 97 is an illustration of a Chart of Accounts screen display;

Figure 98 is an illustration of a Chart of Accounts—Account Detail screen display;

Figure 99 is an illustration of an Accounts Receivable Customer Setup screen display;

Figure 100 is an illustration of an Accounts Receivable screen display;

Figure 101 is an illustration of an Accounts Receivable—Account Detail screen display;

Figure 102 is an illustration of an Accounts Payable Partner Setup screen display;

Figure 103 is an illustration of an Accounts Payable screen display;

Figure 104 is an illustration of an Accounts Payable—Account Detail screen display;

Figure 105 is an illustration of an account distribution pop-up screen used to allocate an invoice amount between different accounts;

Figure 106 is an illustration of a General Journal output screen display;

Figure 107 is an illustration of General Journal input screen display;

Figure 108 is an illustration of a screen display used for financial report definition;

Figure 109 is an illustration of a resulting financial report;

Figure 110 is an illustration of a screen display used for trend report definition;

Figure 111 is an illustration of screen display including a dialog used to select trend frequency;

Figure 112 is an illustration of screen display including a window in which trend report data are displayed;

Figure 113 is an illustration of a trend report graph screen display;

Figure 114 is a block diagram of a human resource infrastructure for a virtual organization performance evaluation model;

Figure 115 is an illustration showing in greater detail portions of the human resource infrastructure of Figure 114;

Figure 116 is an illustration of a file structure used to track all performance metrics of interest;

Figure 117 is an illustration showing in greater detail the Factual Measurement Review process of Figure 115;

Figure 118 is an illustration of a seris of selection menus used to select an employee for whom a factual employee evaluation report is to be displayed;

Figure 119 is an illustration of screen displays used to display factual performance analysis results in accordance with an exemplary embodiment of the invention;

Figure 120 is an expanded view of the multiple period screen display of Figure 119;

Figure 121 is an illustration of a dialog displayed as a result of qualification of user inputs during the course of adding invoices;

Figure 122 is an illustration of a further dialog of a similar type as that of Figure 121;

Figure 123 is an illustration of yet a further dialog of a similar type as that of Figure 121;

Figure 124 is a partial illustration of a pop-up menu of options available during vendor invoice display;

Figure 125 is a partial illustration of a pop-up menu of options available during vendor invoice display, showing options not shown in Figure 124;

Figure 126 is an illustration of a pop-up menu of options available during customer invoice display;

Figure 127 is an illustration of a pop-up menu of options available during display of items sold;

Figure 128 is an illustration of a pop-up menu of options available during display of sales records;

Figure 129 is a block diagram illustrating a knowledge base, the expression of the knowledge base in screen displays of the present system, and a manner in which the knowledge base is increased;

Figure 130 is an illustration of an RMA Reports screen display;

Figure 131 is an illustration of an RMAs pending approval screen display;

Figure 132 is an illustration of an open RMAs screen display;

Figure 133 is an illustration of a Shipping Reports screen display;

Figure 134 is an illustration of a summary shipping report screen display;

Figure 135 is an illustration of a detailed shipping report screen display;

Figure 136 is an illustration of a POD screen display;

Figure 137 is an illustration of an Accounting Reports screen display;

Figure 138 is an illustration of a date-range-limited accounting report screen display;

Figure 139 is an illustration of an invoice screen display;

Figure 140 is an illustration of a multiple invoice search screen display;

Figure 141 is an illustration of a customer collections screen display, showing a Get Problems dialog;

Figure 142 is an illustration of the customer collections screen display showing a Searches pick box;

Figure 143 is an illustration of the customer collections screen display showing a Select Problem dialog;

Figure 144 is an illustration of the customer collections screen display showing a Select Tickler dialog;

Figure 145 is an illustration of a purchasing output screen display;

Figure 146 is an illustration of an expediting output screen display;

Figure 147 is an illustration of a receiving output screen display;

Figure 148 is an illustration of an installation output screen display;

Figure 149 is an illustration of a shipping output screen display;

Figure 150 is a flow diagram illustrating a percolation process for purchasing;

Figure 151 is a flow diagram illustrating a percolation process for receiving;

Figure 152 is a flow diagram illustrating a percolation process for shipping;

Figure 153 is a flow diagram illustrating a percolation process for installation/assembly;

Figure 154 is a flow diagram illustrating supply chain integration/management features of the present invention;

Figure 155 is a diagram of a first electronic template for specifying a customized business relationship;

Figure 156 is a diagram of a second electronic template for specifying a customized business relationship;

Figure 157 is a block diagram of a client/server business automation system in which a common database supports both end-to-end business process automation and sales force automation;

Figure 158 is a more detailed representation of sales force automation capabilities of the the system of Figure 157;

Figure 159 is a detailed listing of RMA types and sub-types;

Figure 160 is an illustration of a screen display showing customer-specific automatic RMA approval criteria; and

Figure 161 is an illustration of a Sales Force Automation screen display.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Architecture

Referring now to Figure 2, the present automated business process may be imagined as a kind of information assembly line. A first system user, or "information worker," having for example a Sales assignment or activity focus, initiates an automated, end-to-end business process by entering information into a client/ server single relational database, which forms a common hub of the automated business process. The user's entry is qualified, or "quality checked," as represented by a checkvalve. Such qualification is "experiential," i.e., derived from actual business experience, and differs qualitatively from the type of data validation typically performed in database systems. If the user's entry fails scrutiny by the system, it cannot be committed to the database. Similarly, the business process cannot continue to the next user. As a result in part of such experiential qualification, verifiable and usable management and enterprise information may be made readily available.

In the case of conventional systems, by contrast, a team of software engineers write an application based on input from groups of users from different departments to produce a definitive, linear workflow. The users, however, cannot anticipate the need for various features prior to using the software. Furthermore, the conception of the programmers may often differ significantly from that of the users. The result often leaves much to be desired. In SAP, BAAN, and other database systems, exceptions to the workflow must all be programmed. Updates are delayed until the next version of the software, at which point the same cycle repeats. Meanwhile, users suffer. Furthermore, because different users have different concerns, little consideration is given to the up-stream and down-stream effects of different user's actions. There results a "disconnect" between the behavior of the system and day-to-day real-world needs.

In the present system, navigation of the workflow is soley determined byt he access authority of the user. Workflow components are all pre-existing and preprogrammed. User inputs to the system, however, do undergo a qualification process. Qualification of user inputs has multiple facets. First, each user is accorded limited access privileges. An authority check is therefore performed to ensure that the user is authorized to make the entry being attempted. Second, the entry is checked in accordance with business rules that embody best practice as determined from an analysis of expected parameters and how various values of those parameters affect possible outcomes downstream. Thirdly, entries, even after then are committed to the database, are subjected to intelligent consistency checks in order to detect discrepancies and provide feedback to allow for correction. If input qualification is successful, then succeeding events in the sequential business process are triggered.

Each worker in turn builds upon the information base established by preceding workers, and each workers entries are rigorously qualified. For example, following sales, process flow may continue to Sales Support, Accounting, Purchasing, Receiving, Assembly, and Shipping.

During the process external influences occur. An external influence may be a communication from a customer or vendor, for example, to either convey information or to view information stored in the central database. An example of an external influence might be a vendor special rebate. Information may be conveyed by electronic means (e.g., Internet, intranet, EDI, satellite, remote terminal direct-dial), human-mediated telecommunications (e.g., email, phone, fax), or by physical means (letter, visit, etc.).

As compared with the conventional business process of Figure 1, the circular automated business process of Figure 2 revolves around a single integrated database that accumulates information regarding every important activity of every user and defines a non-repetitive process. Furthermore, as compared to the essentially non-reversible process of Figure 1, the process of Figure 2 is reversible. As seen in Figure 2, following Shipping is a Return/RMA (Return Merchandise Authorization) activity, or, more generally, a reversal activity. This activity enables the forward process to be reversed, or backed out of step-by-step, as part of the overall automated business process.

The cumulative nature of the database of Figure 2 and the sequential nature of the business process enables incisive factual analysis in the areas of employee/vendor performance and customer satisfaction, promoting fairness and personal responsibility. Whereas a human supervisor may effectively supervise only a limited number of employees, the database-implemented business methodology of Figure 2 provides for each employee what may be regarded as a "virtual mentor:" the user is guided during use of the system to prevent common mistakes (in fact, all mistakes made collectively by the all of the user's predecessors functioning in the same assignment), and the user's performance is continuously tracked and made accessible. Strengths and weaknesses in the employees performance may recommend certain changes in assignments—which changes may be made relatively easily by the employee because of the intuitiveness and intelligence of the system. An important aspect of virtual mentoring is an "open-book" information access policy: users, although they may limited access to input information, typically have few if any limits on access to information. The virtual mentoring process, described in greater detail hereinafter, promises to make the virtual office and telecommuting, with all its attendant advantages, a practical reality for a much wider segment of the workforce.

Referring now to Figure 3, a block diagram is shown of a computing environment in which the present invention may be used. A Web-enabled, client/server relational database management system (DBMS) is provided storing a database including files belonging to different business domains, e.g. a products domain, a payments domain, a financial performance domain and a personnel domain. (The term "product" is used generically herein to refer to items sold and may be tangible goods, financial products, subscriptions—anything that may be bought and sold in a discrete transaction.) Also provided are code modules pertaining to each of the different domains. Customers and vendors may obtain access to the database through the Internet or the like. The physical location of the database therefore becomes irrelevant—the database can be everywhere in the world, either through wired communications or wireless communications. A firewall (or other security scheme, such as encryption, implemented in either hardware or software) may be provided between the Internet and the Web interface of the DBMS. Internal clients may be connected to the DBMS through a local area network (LAN) or through an intranet, using the Web interface.

Web User Interface

The Web interface to the database, particularly as seen by the customer, will presently be described in greater detail.

Referring now to Figure 4, within a principal navigation path a Web user is presented with buttons representing various options. In an exemplary embodiment, these options relate to, respectively, products, returns/repair, tracking, reports, accounting and log off. Two further options are also presented, PID maintenance and APL maintenance, the functions of which will be made clear hereafter.

In the example of Figure 4, the Products button is assumed to have been selected, resulting in the display of various search options. In the illustrated embodiment, Options 1-4 draw from an electronic products catalog directly. A product listing may be obtained by product category, all manufacturers (Option 1) or a single manufacturer (Option 2), or by manufacturer, description or part number (Options 3 and 4). Options 5-8 do not draw from the electronics products catalog directly but instead allow ordering to be performed without interacting directly with an electronic products catalog as described hereafter.

Selecting Option 1 causes a screen such as that of Figure 5 to be displayed, in which various product categories are displayed next to corresponding buttons. When the "Accessories & Supplies" button is selected, a screen such as that of Figure 6 is displayed, in which various sub-categories of products are displayed next to corresponding buttons. This division and sub-division may have any number of levels. In the illustrated embodiment, selection of the "Cables & Connectors" button causes a screen such as that of Figure 7 to be displayed, showing still a further level of sub-division. When the "Printer" button is selected, a screen such as that of Figure 8 is displayed, showing printer cables from the electronic product catalog. The user may check items of interest and click on "Show Selected Items," whereupon only the checked items are displayed. The user may search within the selection, reset (causing all of the items to again be displayed) or initiate a new search by clicking on corresponding buttons at the bottom of the page. For example, if the user checks the first item and clicks "Show Selected Items," a "shopping basket" screen such as that of Figure 9 is displayed. The user may return to the previous products list, search for more items, create a quote with the displayed items by entering a quantity for each item, or empty the shopping basket.

Selecting Option 2 from the product search page (Figure 4) causes a screen such as that of Figure 10 to be displayed. The user inputs a manufacturer's name, or clicks on a letter of the alphabet to choose from a list of manufacturers whose names begin with that letter.

Selecting Option 3 from the product search page (Figure 4) causes a screen such as that of Figure 11 to be displayed. The user inputs one or more of the following items of information: manufacturer, item description and manufacturer part number. Multiple part numbers may be entered and search simultaneously by clicking the "Search multiple products" button.

Selecting Option 4 from the product search page (Figure 4) causes a screen substantially similar to that of Figure 10 to be displayed.

Selecting Option 5 from the product search page (Figure 4) causes a screen such as that of Figure 12 to be displayed. This screen is similar to that of Figure 11. However, instead of merely searching the electronic catalog, the search identifies products that meet the criteria specified and that have previously been purchased on the user's account ("core products"). The search may be date limited. Alternatively, the user may choose to display all core products by clicking the corresponding button. Figure 13, for example, shows a list of core products resulting from the search criterion "Compaq."

Selecting Option 6 from the product search page (Figure 4) causes a screen such as that of Figure 14 to be displayed. Rather than purchase products item by item, the present system allows the user to store groups of items that work together as pre-configured products, each identified by a user-assigned Product group ID (PID). The user may search for a specific PID or multiple specific PIDs, or the user may show all PIDs. An example of a screen display that results when the user clicks "Show all PIDs" is shown in Figure 15. PIDs may be regarded as a "favorite quotes" list that may be repeated reused by the user. An example of a PID is shown in Figure 16.

Selecting Option 7 from the product search page (Figure 4) causes a screen such as that of Figure 17 to be displayed. In addition to PIDs, the present system allows Approved Product Lists (APLs) to be stored, including both a company APL and a personal APL. The user may search an APL or show an APL in its entirety.

Selecting Option 8 from the product search page (Figure 4) causes a screen such as that of Figure 18 to be displayed. This option allows previous quotes to be found and displayed. The user may specify a particular quote by quote number or may display the quotes for the current day or the current week. The quote or quotes that are found are displayed within a screen display such as that of Figure 19. Selecting a quote and clicking "Show selected Quote" causes a screen such as that of Figure 20 to be displayed. Various actions may be taken with respect to the quote including: add/change/remove products; arrange the order of quote items; save the quote for future reference; place an order based on the quote; and duplicate the quote into a new quote. The user may also return to the last search results of the Products List.

PIDs and APLs may be maintained on-line by the user. Clicking on the PID Maintenance button within the screen of Figure 4 causes a screen such as that of Figure 21 to be displayed. The user may create a new PID or review existing PIDs. For example, clicking on the "Show PIDs currently Active" causes a screen such as that of Figure 22 to be displayed. The user may click on a PID number to view the PID in detail.

Clicking on the APL Maintenance button within the screen of Figure 4 causes a screen such as that of Figure 23 to be displayed. The user then chooses between company APL and personal APL. Clicking on "Company APL," for example, causes a screen such as that of Figure 24 to be displayed. The user may add or delete an item to or from the APL by manufacturer part number or take any of various action with respect to the APL, including: search for products to add to the APL; delete items from the APL; end APL maintenance; and sort APL items by part number, manufacturer, price or description.

Clicking on the Returns/Repair button within the screen of Figure 4 causes a screen such as that of Figure 25 to be displayed. This screen allows a user to identify, in any of various ways, a product to be returned or repaired. For example, the product may be identified specifically by serial number, asset tag number, or the order to which the product belongs can be identified by customer purchase order number, customer invoice number, customer Purchase Requisition Number (PRN), or customer Request For Quote (RFQ) number. Clicking on the "More Search Options" button causes a screen such as that of Figure 26 to be displayed. From this screen, the user can search for a product to be returned by manufacturer name, part number and/or purchase date. The user may also look up Return Merchandise Authorization (RMA) records by date. Figure 27, for example, shows RMAs created between 6/2/98 and 7/1/98. Clicking on the RMA number causes the corresponding RMA record to be displayed as shown, for example, in Figure 28.

Clicking on the Tracking button within the screen of Figure 4 causes a screen such as that of Figure 29 to be displayed. The user selects the type of tracking information desired: sale order status, return product and service part status, product purchase history, or return and service history. If other status information is desired, the user may describe the desired information and submit a an email request. In essence, the present system allows remote users, including customers, vendors, manufacturers, etc., to view relevant status information pertaining to most or all of the product life cycle stages: purchasing, receiving, shipping, installation/assembly, billing, return/service, etc.

Clicking on "Sales Order Status" (Figure 29) causes a screen such as that of Figure 30 to be displayed. A sales order may be identified by customer purchase order number, customer invoice number, customer Purchase Requisition Number (PRN), or customer Request For Quote (RFQ) number or by identifying an item belonging to the order, by serial number or asset tag number. If the user does not have any of this information, the user may search for sales orders by manufacturer, part number, and/or date range. Figure 31, for example, shows the result of searching for sales orders by manufacturer (Compaq).

Clicking on "Return Product & Service Part Status" (Figure 29) causes a screen such as that of Figure 32 to be displayed. RMAs may be identified by RMA number, temporary case number, quote number, or by any of the various pieces of information referred to in previously (PO number, etc.). Figure 33, for example, shows RMAs identified by PO number. The user checks one or more RMAs of interest and then selects an action to take, e.g., "Get Freight Carrier & Tracking #" or "Ship to Address." Selecting "Get Freight Carrier & Tracking #" causes a screen such as that of Figure 34 to be displayed.

By clicking on "Product Purchase History" (Figure 29), the user may display by date range items previously purchased. Figure 35, for example, displays items purchased from Oct. 4, 1998 to Oct. 5, 1998. Similarly, clicking on "Product Return History" causes a screen such as that of Figure 36 to be displayed. Figure 37 displays items returned from Apr. 1, 1998 to May 1, 1998.

Clicking on the Reports button within the screen of Figure 4 causes a screen such as that of Figure 38 to be displayed. The reports may include such reports as the following: Back Order Reports, Monthly Sales Reports, Packing

Slips, RMA Reports, Shipping Reports, etc.

Clicking on "Back Order Reports" (Figure 38) causes a screen such as that of Figure 39 to be displayed. Some units of an item may have been shipped but not all. If so, the 1st Ship and Last Ship fields indicate when the first unit of that item was shipped and when the last unit was shipped.

Clicking on "Monthly Sales Reports" (Figure 38) causes a screen such as that of Figure 40 to be displayed. The user selects a date range or a month and clicks "Take Action." A display such as that of Figure 41 results, listing each item sold on the user's account during the period, including total quantity, total cost, average unit cost and number of times ordered. Also displayed is the status of each purchase order for the period, the grand total of all purchases for the period, and the number of orders.

Clicking on "Packing Slips" (Figure 38) causes a screen such as that of Figure 42 to be displayed. Packing slips may be searched by providing a piece of identifying information in similar manner as described previously or may be identified by month. Figure 43, for example, shows packing slips for the month of Oct., 1998. Clicking on the packing slip number causes the packing slip to be displayed, as shown in Figure 44.

Clicking on "RMA Reports" (Figure 38) causes a screen such as that of Figure 130 to be displayed. The user is presented with various options, for example, show approved RMAs, show pending RMAs, show all open RMAs, etc. Clicking on Option 1 causes a screen such as that of Figure 131 to be displayed. By clicking on an RMA number, details of the RMA may be displayed. Clicking on Option 2 causes a similar screen to be displayed, showing only RMAs that have been approved. Clicking on Option 3 causes a screen such that of Figure 132 to be displayed, showing all open RMAs.

Clicking on "Shipping Reports" (Figure 38) causes a screen such as that of Figure 133 to be displayed. The user is prompted to specify a date range for generating a shipping report. Clicking on "Submit" causes a screen such as that of Figure 134 to be displayed, summarizing the number of shipping records found. Clicking on "Show All Details" causes a screen such as that of Figure 135 to be displayed. Items shipped during the specified period are displayed by PO number. Clicking on "POD" for a particular item causes Proof of Delivery information for that item to be displayed as shown, for example, in Figure 136. In addition, the user may request email status updates for an order by clicking the corresponding link. As the order status changes, the user will then be automatically informed by email.

Clicking on the Accounting button within the screen of Figure 4 causes a screen such as that of Figure 137 to be displayed. The user can retrieve particular invoices and credit memos by supplying any of various pieces of identifying information, or can retrieve invoices and credit memos by date range. Retrieving by date range causes a screen such as that of Figure 138 to be displayed. By clicking on the appropriate button, the user can display a selected invoice, purchase order, or packing slip. Clicking an invoice button, for example, causes a screen such as that of Figure 139 to be displayed.

The user can also enter a list of invoice numbers to be retrieved. More particularly, selecting Option 8 within the screen of Figure 137 causes a screen such as that of Figure 140 to be displayed. The user can then enter as many invoice numbers as desired.

A user may create one or more quotes but not act on the quotes for a considerable period of time. The quotes serve as an expression of interest on the part of the user. As time passes, however, the liklihood of a quote becoming an order decreases. In accordance with one aspect of the invention, such quotes are automatically identified, and communication with the users is undertaken so as to increase the liklihood of quotes being converted to orders. The communication may be Web-based and may, for example, take the form a promotional offer.

As may be appreciated from the foregoing description, the system provides for "information-rich" invoice payment status tracking and display. The simple knowledge that an invoice is open (has not been paid) is of little value. The more pressing question is *why* a customer invoice should be paid (e.g, has a return question been resolved?) or *why* vendor invoice has not been paid (e.g., was sales tax incorrectly charged?). The present system is designed to track such invoice payment status information. Because the database is Web-enabled, the same information may be readily displayed to customers and vendors, avoiding the need for telephone calls, "telephone tag," etc.

The present Web user interface is designed to accomodate a wide range of users, ranging from unsophisticated to sophisticated. To accomodate the unsophisticated user, any of various bits or pieces of information may be used to retrieve a record, for example the approximate purchase date. To accomodate the sophisticated user, multiple identifiers may be entered at a time in order to retrieve multiple records at a time, e.g., multiple part numbers, invoice numbers, RMA numbers (Return Merchandise Authorization numbers, described more fully hereafter), etc. This feature allows a user to quickly access a collection of desired information quickly with a single click. This feature is especially powerful in connection with RMAs. Instead of selecting items one at a time in order to create return requests, a user may enter several or many identifiers of a particular type (e.g., P.O. numbers, invoice numbers, asset tag numbers, etc.) and create a corresponding number of return requests.

Preferably, this same multiple-entry feature is provided in an internal client user interface in addition to the Web user interface.

Web Security

Doing business electronically poses various security risks. In the case of consumer-oriented Web commerce, much attention has been focused on secure transmission of credit card numbers and various security mechanism have been made available. In the case of business-to-business Web commerce of the type described, payment is usually not by credit card except for very small transactions. Instead, security risks involve potential abuse of the system by external parties or even internal parties. The present invention implements various security mechanisms to eliminate or minimize the potential for such abuse. Fundamentally, the security mechanisms are based on concepts of authority and lineage. A simple example is that the ship-to address for an order cannot be changed on-line. This prevents someone from ordering products and having them sent to their home or elsewhere.

Lineage relates authority to organizational hierarchy. The organizational hierarchy of Web users for a particular customer may be represented in tree fashion. A user at the leaf level may be given authority to get quotes but not to place orders. A user at a next-higher level may be given authority to view the quotes of users within a limited sub-tree and may be given limited authority to place orders. A user at the root of the tree may be given unlimited authority, from the standpoint of the customer, to view quotes of any user and place orders in any amount.

Referring generally to Figure 46, in the case of a typical company, various end users will be given different levels of authority, e.g., to create quotes but not purchase, to track orders, to perform returns, to view order information via the Web, or, in the most limited case, to have no access to Web purchasing information. To initiate the purchase process, an end user makes a quote request to his or her supervisor, who must approve the request. The request may require multiple further approvals, for example of an MIS department, an accounting department, a material management department, etc. In a typical scenario, the material management department will forward an approved request to a purchasing department. Authorized persons within the purchasing department may then send an order via the Web. In every instance, when Web access is attempted (and in fact every time a TCP packet is received), a user's authority is checked and that user's interaction via the Web is limited to the scope of that authority.

External Web authority information is stored for each customer in a customer file. An example of a customer record is shown in Figure 47. From the customer file, a company price list record such as that of Figure 48 may be displayed. For each customer, a price basis may be agreed upon for items that the customer buys regularly. External Web authority information is stored as part of the customer price list.

The manner in which a external Web user's authority is specified is illustrated in a series of figures beginning with Figure 49. First, the user's name is entered, first name (Figure 49) then last name (Figure 50). An employee number may then be entered (Figure 51), absent which an arbitrary employee number is generated automatically. A dialog then asks whether the user is authorized to make Web purchases (Figure 52). If the user is authorized to make Web purchases, then a further dialog calls for a purchase limit, if any, to be specified (Figure 53). A confirmation dialog is then displayed (Figure 54). The customer price list record following addition of the Web user with specified authority is shown in Figure 55.

The specific limits placed on a user's purchase authority may vary. Other examples of limits that may be desired by some companies are a limit on the number of purchase orders per day, a limit on the total amount of purchase orders per day, a time-of-day limitation as to when orders may be placed, etc. Various other security parameters may be added. Such limits may be set and changed remotely via the Web and given immediate effect within the system.

Limits are also placed on internal users access to security parameters so as to provide customer assurance that there exists no potential for internal abuse of the system (e.g, authorizing a crony to make illicit purchases on a customer account). A user may have authority to use (view) but not approve changes to certain security parameters, and may have authority to use and approve changes to other security parameters. In an exemplary embodiment, the authority of various users is set as illustrated in Figure 45.

Catalog Management

In the case of a company based on the conventional model of real inventory, Web catalog management is relatively straightforward. In the case of a company based on the model of virtual inventory, "the world is your warehouse." Intelligent catalog management is therefore of vital importance. Intelligent catalog management, in an exemplary embodiment, is based on a concept of "baseline." A baseline is a collection of products that functions as a standard of comparison. In an exemplary embodiment, there is both a vendor baseline and a customer baseline. Using the baseline concept, a product list without duplicates may be displayed. Furthermore, there may be displayed to the customer only products that there is some reasonable likelihood of the customer buying.

On the vendor side, one vendor is selected to serve as the baseline vendor. The baseline vendor will typically be a vendor found to have the most comprehensive inventory, the most useful categorization scheme, etc., and may be varied as often as desired. To create an update baseline, product listings of vendors are compared with the current baseline. If a product is already part of the baseline, as determined by manufacturer part number, then the product is grouped under the same baseline listing. For example, the same computer may be available through multiple different vendors. Rather than creating multiple product listings for the same product, these multiple product listing are consolidated under a single baseline product listing. If a product is not in the baseline, it may be added to a "supplemental baseline." If the baseline vendor does not carry a particular product but one or more alternate vendors carry the product, then the product will be listed in the supplemental baseline, again without duplicates.

After an updated baseline has been compiled, it is compared with the previous baseline. A product listing may be found: 1) in the old baseline only; 2) in the new baseline only; or 3) in both. Product listings in categories 1 and 2 are flagged as discontinued products and new products, respectively.

During the foregoing process, product cost and customer pricing information is updated. Also updated are URLs to vendor and manufacturer Web sites. These URLs may be used to refer Web users to these sites for product information. Product list updating may occur continuously or at regular intervals using "pull" technology, "push" technology, some combination of the two, or some other information retrieval technology or combination of technologies.

On the customer side, a customer baseline is formed by combining: 1) customer APLs (Approved Product Lists) for all customers or some subset of customers; and 2) historical purchase information, taking into account such factors as purchase date, volume, etc. There results a non-duplicative list of products customers have bought or are presently approved to buy. Products in the vendor baseline may be flagged as belonging or not belonging to the customer baseline.

As a result of the baseline concept and the power of the DBMS, great flexibility is provided in the manner in which products may be displayed. A user may search the product file and request to see new products, discontinued products, vendor baseline products, without duplicates, vendor baseline products expanded to show duplicates, customer baseline products, customer-specific APL products, etc. In this manner, the seeming chaos that would otherwise result from the "infinitude" of products embraced by the notion of virtual inventory is tamed and made manageable.

Much of the difficulty of successfully implementing a cohesive business-to-business Web commerce solution has resulted from different aspects of a company's business being automated on different computing platforms. As illustrated in Figure 56, for example, a product catalog may be implemented on one platform, shipping implemented on another platform, accounting implemented on still another platform, etc. To interface all of these different functions to the Web requires multiple interfaces.

By using a single Web-enabled database and providing for all necessary functions within a single database schema, the present Web commerce solution avoids the daunting complexity characteristic of the prior art. Referring to Figure 57, a single universal interface may be used to place the entire contents of the database, or as much of those contents as desired, on the Web.

Database Schema

An important feature of the present system is that a single database, described by a single database schema, is used to automate an overall business process, end-to-end. To do so, the schema must, understandably, be quite complex. A general outline of the schema is shown in Figure 58. The complete schema, or structure diagram, is set forth as Appendix A.

Referring to Figure 58, the manner in which various automation processes relate on an inter-domain basis may be appreciated. The products domain is represented in approximately the upper third of Figure 58 and includes sales functions (5801) and shipping/receiving functions (5803). Purchasing and installation functions, now shown in Figure 58, are shown in the microfiche appendix. The payments domain is represented in approximately the middle third of Figure 58 and includes AP functions (5805), AR functions (5807) and return functions (5809). The financial performance domain is represented in approximately the lower third of Figure 58 and has financial information automatically posted to it from the payments domain, as described more fully hereinafter. The personnel domain is not shown in Figure 58 but draws upon information from the other domains in a manner described more fully hereinafter.

In an exemplary embodiment, the relational database management system provides both a "Quick Switch" option whereby any base table may be viewed or a "Related Switch" option (described in greater detail hereinafter) whereby a base table may be selected from which is then displayed a row related to a selected row in a current table. Various user options may be provided programmatically. Table

1 is a list of most of the base tables and corresponding options in an exemplary embodiment of the invention.

Table 1

Base Table	(Options)
Addresses	
AllocatedIndex	
AP_Registers	
AR_Registers	
Chart of Accnts	
Checking_Acts	
Ch Statements	
Claims	
Commission Reg	Quick invoice lookup Quick credit lookup Get register Get not approved Get approved but not paid Approve Disapprove Change payment date Pay

Table 1

Base Table	(Options)
Commissions	Quick lookup by period Quick transaction lookup Quick PO lookup Quick MWS lookup Quick invoice lookup Quick credit memo lookup Get not approved Approve Get approved Schedule payment Notes Hold Get hold Reset back 1 Check commissions Recalculate commissions Change commission Email
Contacts File	
CustCredMemos	Quick memo lookup Credits not taken Credits taken Credits on hold Internal credits not taken Internal credits taken Hold credit memo Internal notes Customer notes Internal status change

Table 1

Base Table	(Options)
Customers	Add employee purchase record Approve customer Find employee List employees
CustPayments	Get not approved Get not posted Approve Post
Cust_invoices	Quick invoice lookup Cust invoice summary Print selection Comm report Get AR report selection Get not issued Get not paid Get no charge Get pre-paid Close—no charge Split invoice Join 2 invoices Issue invoices Check for not issued invoices
Defaults	
DropShipments	
FAX Templates	
Item Details	

Table 1

Base Table	(Options)
Items Sold	Quick MWS# lookup Add MWS to fast order Open order reports Expedite/availability Customer notes CSR notes Status (restricted) Expand to all items sold Remove shipped Check selection again Update MWSs Clear updates Tech expedite Clear tech expedite Get in house not rcvd Receive in house Get installation not rcvd Receive installation
MWSLog	
OverUnderPay	Get not reconciled Get not cleared Get open Close
Packing Slips	
Partners	Find by expense account Vendor priority maintenance
Personnel	
PID ItemsSold	
PIDs	
Products	

Table 1

Base Table	(Options)
Purchase Stats	
Purchasing	
Quote Detail	
Rcvd Boxes	
Receiving	Receive Installation Update MWSs Double, wrong, defective, or no MWS Fill allocation Freight check Recover receiving register
Report	
RMA	Quick RMA lookup Quick case lookup Quick PO/PID/PRN/RFQ Get Web RMAs Update RMAs Expected cred summary Edit fax cover sheet notes

Table 1

Base Table	(Options)
Sales Records	Quick MWS# lookup Quick quote# lookup Quick PO/RFQ/PID/PRN LU/conf. PurchChecks Update MWSs Expedite/availability/purch Urgent Not Urgent Daily PO confirmation Get quotes Print quote confirmation Quotes requiring REVIEW Cancel REVIEW Get purchasing records Print purchase summary Clear updates Lock Unlock Get unlocked Change TPO to real PO Get temporary POs Get Web quotes
Sales_Reps	
Sales_Support	
Sales_Taxes	Recalc selection Add sales tax

Table 1

Base Table	(Options)
Shipping	Quick lookup by period Quick lookup by pickup number _ Following works in selection Get not reconciled open Get not reconciled closed Get reconciled open Get reconciled closed Installation Update MWSs Freight check Reconcile freight Recover register Merge registers
TaxRegister	Due dates Update user selection Print user selection Sets window
Tax_Tables	

Table 1

Base Table	(Options)
Ven Pmnt Regs	Quick invoice lookup Quick credit lookup Get register Get not approved Get approved but not paid Approve Disapprove Change payment date Pay Get regs with credit balances Vendors with credit balances Close register Open register
VenCollection	Quick memo lookup Quick invoice lookup Quick payment register lookup Get not used Get excess/not distributed Get distributions Get expected memos Reconcile expected memo Get not pre-approved Pre-approve Get pre-approved Approve Get approved Schedule Reset status back 1 Cancel credit memo
VenMultiCred	

Table 1

Base Table	(Options)
VenRecExpCred	

Table 1

Base Table	(Options)
Ven_Invoices	Quick invoice lookup Quick voucher lookup Quick check lookup Search selection by date Verify selection Daily verification Get all not paid Get not reconciled Get reconciled Reconcile with credit Pre-approve Get pre-approved Remove pre-approved APPROVE Get approved Schedule payments Schedule pre-paid payments Close selection HOLD selection Get hold Reset status back 1 Edit terms/payment/vouchers Integrity check Temporary notes Update invoice Mark ready for review Get ready to review Mark reviewed Get reviewed

Various screen displays showing the options pop-up menu for that screen display are shown in Figure 124 through Figure 128.

Business Process—Overview

An overview of the present automated business process is shown in Figure 59. In an illustrated embodiment, the automated business process has nine entry points, designated E1-E9, at which users enter information into the system. Interaction with the system is carefully controlled and user inputs carefully qualified to ensure, to the greatest degree possible, error-free operation.

The business process is customer-driven. The first entry point E1 in the business process is Sales/RMAs. In response to a customer request, a user having responsibility for E1 enters information about the customer request into the database. If the request regards sales, the information is checked and converted to a Master Worksheet (MWS). At an entry point E2, the responsible user groups MWSs for purchasing and places orders. Information is assembled for later use in receiving (E3), installation (E4), and shipping (E5). Respective users at these entry points make entries into the database which as confirmed against the assembled Purchasing/Shipping/Receiving/Installation (PRIS) information to verify correctness.

Unlike prior art systems, the present system provides the option of carrying inventory or operating under the concept of virtual inventory. In accordance with the concept of virtual inventory, all of the goods available for purchase in all of the warehouses throughout the world are regarded as available inventory. Because the Web allows business to take place at light speed, the difference between physical inventory and no physical inventory can be merely the click of a button on a computer screen. As goods are received and shipped, these events are tracked by a virtual inventory process in which all items are presold. In one aspect of the invention, virtual inventory is defined as each vendor order item being related to at least one item sold record created in response to receiving user demand information directly from a user; i.e., the system is "demand driven."

Virtual inventory may be more fully understood in relation to the data processing concept of pipelining. Some delay occurs as the data pipeline is initially filled. Thereafter, results are produced at every cycle. The initial delay is the time required to perform a data operation on the data inputs. Similarly in the case of goods. An initial inventory of goods may be required to satisfy demand during a time period from when a demand is received until that demand can be filled—i.e., the manufacturing cycle. Thereafter, supply and demand should be exactly balanced. As demand increases and decreases, the rate of manufacture is varied accordingly such that supply and demand remain exactly balanced. In the case of a reseller, the manufacturing cycle is zero. The requirements for real inventory are therefore zero, enabling pure virtual inventory. In other businesses with non-zero manufacturing cycles (from days to weeks, months or years), the foregoing concept of virtual inventory may still be applied such that, in the "steady-state" condition, supply and demand remain exactly balanced.

Where physical inventory is required or desirable, it may be treated simply as an internal demand as opposed to a customer demand. In both cases, the demand is represented by an MWS. In the case of internal demand, however, the customer is the business itself.

Referring still to Figure 59, entry points E6 and E7 relates to customer and vendor payments, respectively. Assembled information is input to A/P and A/R modules. Customer payments are received and entered in conjunction with the A/P module. Vendor payments are made in conjunction with the A/R module.

A general ledger (GL) module tracks transactions and their financial implications in real time. It therefore receives information from the A/P, A/R and virtual inventory modules as well and entry points E6 and E7. Bank statement information is also input to the general ledger module at entry point E8.

The customer request, instead of being for sales, may be an RMA request.

Information is then input from E1 to an RMA module. A reverse process in then executed, begun by an RMA number being communicated to the customer. In the typical case, the customer then returns merchandise authorized for return. The returned merchandise is received (entry point E3) in conjunction with the RMA module and receiving information portion of the assembled information. The RMA module communicates with the GL module so that appropriate accounting entries may be made.

The effect of the overall business process is two-fold. First, a response to the customer's input is produced and communicated back to the customer. Second, during the course of the business transaction, a wealth of historical data are accumulated that may then be subjected to factual analysis for purposes of ensuring customer satisfaction, evaluating employee performance, and evaluating vendor performance.

In the following description, the course of an order will be described within each of the domains identified in Figure 3, as follows: in the product domain, from quote to shipment, as well as return (although rather atypical, returns are nevertheless a common occurrence); in the payments domain, from invoice to payment (both customer and vendor); in the financial performance domain, from cashflow to financial statements; and finally, in the factual performance domain, from parameters such as time, quantity and dollar volume to individual and group employee performance.

Sales

As may be appreciated from the foregoing description, an order may be preceded by a quote. Quotes may be requested and orders may be placed in writing (e.g., by fax), verbally (e.g., by phone), or electronically via the Web. More generally, order information may be conveyed by electronic means (e.g., Internet, intranet, EDI, satellite, remote terminal direct-dial), human-mediated telecommunications (e.g., email, phone, fax), or by physical means (letter, visit, etc.). Regardless of the origin of the quote or order, the quote or order becomes a sales record.

A screen display that may be used to view sales records is shown in Figure 60. Quotes are each assigned a Quote number having a "Q" prefix. Orders are tracked via records referred to as "Master Work Sheets" (MWS). A Master Worksheet contains all of the vital information related to an order. As seen in Figure 60, orders are each assigned a MWS number having a MWS prefix. The screen display of Figure 60 includes a status column in which the status of each quote and order is indicated, e.g., WebSubmit, WebQuote, Purchasing, etc. The status of each record can therefore be readily ascertained and tracked.

Referring to Figure 61, the input layout of a quote is shown. During record input, the system prompts the user at every opportunity. For example, when the cursor is placed within the customer field, a list of previous customers is displayed. Assuming the customer is a repeat customer, the user can select the customer from the list. Various fields are then completed from information previously stored for that customer.

To add an item to a quote, the user clicks the "+" icon, followed by the "Go Prod" button. The Products file is then displayed, as shown in Figure 62. The Products file may contain hundred of thousands or even millions of product records of products from different vendors. When the user selects a product, the all of the relevant information for that product is transferred to the quote. To facilitate selection, the product file may be searched in various ways, e.g. by vendor, product category, etc. By searching the products file by manufacturer part number, the vendor offering the best price for a particular product may be identified.

When all items have been added, the user is asked to specify partial shipment status. The partial shipment status specifies what items, if any, can be shipped separately and what items, if any, are required to be shipped together. The user is further prompted to enter installation information and to ensure that all required cables, brackets, etc. have been ordered. In the case of computer equipment, for example, installation may involve installing a card or installing memory within a computer, loading software, etc. If installation is specified, installation charges are automatically added to the quote.

During the foregoing process, the user may enter notes within a screen 6101. This screen is displayed whenever the quote or MWS is displayed. If a quote is created on the Web, a separate notes screen is provided for customer notes. A corresponding notes screen for internal use only is provided for all quotes.

When the quote is satisfactory, the user may then save the quote by pressing the post to purchasing button.

To ensure that a quote is correct, one or more additional review stages may be required before the quote is converted to an MWS for purchasing. For example, the quote may be reviewed by "inside sales" to make sure that any compatibility requirements have been met and that, from a technical viewpoint, there are no errors in the quote. In a further review stage, the quote may be compared to a paper purchase order, if one exists, to make sure there are no discrepancies. When the quote has passed whatever level of review is required, it is then marked reviewed and converted to an MWS. The format of an MWS is shown in Figure 63.

Note that, during the foregoing process, different people may have different limited privileges. Also, throughout the foregoing process and throughout the system generally, at each information entry point, the user's input is checked for accuracy in order to prevent common mistakes from occurring.

PRIS (Purchasing, Receiving, Installation, Shipping)

Purchasing, receiving, installation and shipping functions are closely interrelated. For this reason, preferably the output display/user interface presented during these different processes preserve a common look and feel.

Purchasing may be based on a real inventory model, a virtual inventory model, or a combination of the two. In the case of the virtual inventory model, automating purchasing functions in such as manner as to 1) scrupulously avoid physical inventory; and 2) achieve business scalability, becomes a challenge. The following description assumes that purchasing is based at least in part on a virtual inventory model.

A simplistic approach to purchasing is to treat each customer purchase order separately. Under this approach, however, the amount of work involved in purchasing is proportional to the number of customer purchase orders; business cannot achieve 100, 200 or 1000% growth in a short period of time without causing severe growing pains.

Instead, the purchasing module of the present system is designed for business scalability and maximum automation, allowing for dramatic growth without a dramatic increase in human effort and with little or no pain. Scalability is achieved by "commingling" customer orders in such as way that what appears to an outside vendor as a single large order is tracked within the system as a multitude of smaller orders.

Referring to Figure 64, purchase order sales actions result in MWS records, each MWS record including all of the relevant information required for purchasing. In an exemplary embodiment, this information includes internal MWS number, customer P.O. number, sales cost, sales price, vendor, part number, manufacturer, manufacturer part number, installation grouping (within a particular MWS), shipping instructions, and stock/inventory status. Each MWS is assigned a unique MWS number which is used throughout the life of a transaction to differentiate distinct purchase orders. Any unique identifier may server the same purpose, including, for example, a material code number, a purchase requisition number, etc.

The design of a purchasing output display/user interface greatly simplifies the purchasing process. For each item to be purchased, a record is displayed including each of the foregoing pieces of information. Preferably, all of the heading allow for sorting on that heading. Furthermore, all items are selectable and may be expanded (by doubling clicking) into item details.

The user interface allows a variety of actions to be performed, including grouping items within the display, removing items from the display, cancelling or changing various aspects of an order, holding an item or splitting an item (e.g., in order to hold less than all of the items details belonging to an item), etc. In an exemplary embodiment, items may be grouped by stock status (B/O, short stock), by shipping instructions (partial shipment OK, no partial shipment), by vendor, by manufacturer, by MWSs including addendums, etc. Groups of items may be removed from the display, including any of the aforementioned grouping and install groups. An item sold (one or multiple physical items) may be removed or an item detail (a single physical item) may be removed. Cancellations and changes may be made to an item sold, an MWS, shipping method, and freight charges.

In accordance with the virtual inventory concept, items within a group (an installation group or a ship group, for example) are acted upon as a group. For example, if one of the items is removed from the purchasing screen (purchase of the item is delayed), all items in the group are removed from the display. Undesired inventory is therefore avoided. Otherwise, an item might be ordered and received only to find that it must be installed with or ship with an item that is back ordered. Valuable cash is then tied up in inventory waiting for the back-ordered item. The present system avoids such unwanted inventory.

In a typical scenario, a purchaser's work might proceed in the following manner.

1. Get all unfinished and new work (all items having no order date).
2. Select a subset of items to work and remove all other items from the output display.
3. Get all back ordered items and purchase them first. Eliminate related "no partial" items from the output display until the corresponding back-

ordered item has been received.

4. Group items from different orders and possibly change vendor on some items to obtain quantity discounts, if possible.
5. Place order and repeat.

In a preferred embodiment, at least the latter two steps are performed via the Web or with information obtained via the Web. Orders may either be placed directly or posted for bid by interested vendors. Furthermore, in accordance with supply-chain management functions described more fully hereafter, a single purchase may be "broadcast" via the Web to all relevant vendors and manfacturers within a supply chain for that product.

Various user interface buttons relate to the actual placing of a purchase order. In a telephonic transaction, purchase cost (Pcost) on an item might be negotiated downward below the sales cost (Scost). By selecting an item and clicking on the button, the purchase cost may be input in the course of placing the order. A sales confirmation number may also be input by clicking on the corresponding button. An automatically generated PO number may be assigned by clicking on button. By clicking on the button, the output display is refreshed to remove from the display items that have been ordered. Simultaneously, the system marks the ordered items as ready to receiving, thus preparing the items for receiving.

More preferably, purchase orders, instead of being placed manually, are placed electronically by linking to the seller's network of vendors. Automated purchasing may occur continuously or at regular intervals using "pull" technology, "push" technology, some combination of the two, or some other information retrieval technology or combination of technologies.

Business rules guide the user to follow a pre-established routine for easily accomplishing complex business tasks including purchasing. Note, however, that dynamic workflow allows an experienced user with the requisite access authority to override business rules in order to handle new business requirements. This authority is in turn counter-balanced by various consistency checks throughout the system that ensure accountability.

Business rules implemented by the purchasing process include the following:

1. Items cannot be ordered before a quote is converted to a MWS.
2. Duplicate orders are not allowed by item or MWS.
3. Items can only be ordered from approved vendors.
4. Purchasing can only be done by authorized personnel.
5. Purchasing notes can only be viewed by authorized personnel.
6. Purchase costs can only be viewed by authorized personnel.

Referring to Figure 65, purchasing information, derived from MWSs, is used in the receiving process. (An item must have been purchased to be received.) Returns (RMA) information, also derived from MWSs, is also used in the receiving process. (Return items must be received in order to give credit.)

When the receiving process is begun, only items sold having an order date but no receive date are displayed. Double clicking on a item causes specific receiving instructions for that item to be displayed, as described more fully hereinafter. The display format is very similar to that of the purchasing process. The possible actions that may be initiated, however, are particular to receiving. Those actions include 1) input actions; and 2) display actions.

Information input during receiving includes packing slip number, serial number (each physical item, where applicable), carrier, quantity, payment terms, number of boxes, condition upon receipt, etc. Batch input for all packing slips and items. The system automatically matches input with items that exist in the system such that the same item cannot be received twice, the wrong item cannot be received, a cancelled order cannot be received, etc.

Expected to receive will exclude refusal items. For example, a customer may change his or her mind after an order has been placed but before the item has been received. In this instance, a refuse instruction may be placed on the item to prevent it from being received.

As in the case of purchasing, in the case of receiving also, great benefit is obtained from allowing vendor access via the Web to see what products order from that vendor have been received. The vendor then obtains the information it requires to be truly responsive to its customer's needs.

Referring to Figure 66, installation is based on the same type of output display. However, only installation groups are shown. Items requiring no installation are not displayed. Furthermore, the user has the option to show all items requiring installation or to show only items requiring installation that have been received. The possible actions that may be initiated include 1) actions used to track installation in various different stages of completion; and 2) input actions, namely input of serial number and asset tag number. (Asset tag numbers may be affixed by prearrangement with the customer and retained in the system indefinitely to assist the customer in accounting for equipment.)

An installation, once begun, may have several possible outcomes. In the typical case, the installation will be completed successfully and the installation group may be released for shipment. In other instances, installation may be only partially completed—e.g., manufacturer technical support may be required, additional parts may be required to complete installation, or additional installation may be required for some other reason. In some instances, the appropriate action may be disinstallation, for RMA purposes or for some other reason. All of these different stages of completion are tracked within the system.

Referring to Figure 67, the shipping process, like receiving, uses both purchase information and RMA information. The output display displays only items sold having a received date but no ship date. Double clicking on a item causes specific shipping instructions for that item to be displayed, as described more fully hereinafter. Input actions that may be initiated include inputting a shipping tracking number, serial number (if not previously entered), customer specific number or asset tag number, claim value, carrier (or will call, which causes a local sales tax rate to be applied), payment terms, boxes, etc. Provision is also made to display only those items expected to ship, excluding refusal items, hold items and items with COD/cash terms.

Referring to Figure 68, throughout the foregoing processes, and in particular receiving, installation and shipping, notes conveying instructions regarding specific items may be displayed by double-clicking an item to cause a item detail display to appear. Included within the item detail display are several notes boxes, including boxes for unique installation notes, standard default notes from the customer file, unique shipping notes, standard default shipping notes from the vendor file (for RMA), RMA installation notes, receiving notes, etc.

The PRIS output display also includes an "Expedite" view, shown in Figure 69. The expedite function is to minimize delay in receipt of ordered products. Expedite actions include entering the Estimated Time of Arrival (ETA) of a product based on contact with the vendor and/or shipper and marking items in accordance with various expedite categories, as well as entering notes if necessary concerning the problem and expected solution.

In accordance with one embodiment of the invention, expedite information may be brought up from the MWS screen, as shown in Figure 70. In Figure 70, a radio button has been clicked to cause a Not Received Report to be displayed. This report shows percentage of order completion in terms of ordering, receiving and shipping, as well as the age of the order in days. Various filtering options are provided. Expedite status for each item may be entered by clicking on one of a large number of status buttons, e.g., "Urgent," "Wrong Product," etc. A Not Shipped report screen display is shown in Figure 71.

Expedite status may also be set using a more abbreviated expedite pop-up, shown in Figure 72.

Figure 145 through Figure 149 show different output displays tailored for purchasing, receiving, installation and shipping in accordance with another embodiment of the invention. These output displays are different views of the same underlying data stored in the Item Detail records—the basis "currency" of the system.

Figure 145 shows a purchasing output display. Various columns are common to all of the PRIS output displays, e.g., MWS number and date, internal PO number, customer name and PO number, item description, etc. Columns of particular interest for purposes of purchasing are Scost/Pcost (expected cost at time of sale and actual purchasing cost), Vendor/Conf#, Mfr./Vendor part number (PN), Lprice/Lcost (the last sales price and purchasing cost for this item), Rebate, Special, and Pcomments, or purchasing comments.

Figure 146 shows an Expedite output display. Of particular interest for purposes of expediting are Order/ETA (expected time of arrival at the time of order), Epd ETA/Status (latest ETA, reason for delay, etc.) and Epd Condition.

Figure 147 shows a Receiving output display. Of particular interest for purposes of receiving is Receive Condition.

Figure 148 shows an Installation output display. Of particular interest for purposes of installation are Install/Date and Install Group. Items within a same install group are to be installed together to form a single functional product or assembly.

Figure 149 shows a Shipping output display. Of particular interest for purposes of shipping are Order/Recd and Ship Group. Items within a same ship group are to be shipped together.

As with both purchasing and receiving, preferably vendors are given access via the Web to expedite information relating to that vendor.

The foregoing principles explained in relation to PRIS may be adapted to other businesses in which, instead of installation, any type of transformation may be performed. In channel assembly, for example, parts are assembled into a product mere days or even hours before the product is shipped to a customer. The transformation may therefore be assembly instead of installation. In other businesses, the transformation may be quite different, e.g., testing, burning-in, mixing, aging, curing, machining, etc. The transformation may be a single-step transformation or a multiple-step transformation in which intermediate products are produced. Whatever the nature of the transformation, information concerning what materials have been transformed, various stages of transformation, etc., are tracked in the database. The purchasing, shipping and receiving functions described previously therefore become part of a comprehensive materials management system.

RMAs

Normally, the order will be successfully shipped to and received by the customer, who would then begin to use the products. In some instances, however, the product may not work as intended, the product may be lost or damaged in shipping, duplicate products may be shipped, or the customer may change his or her mind, necessitating that a product be returned. Returns are provided for through a Return Merchandise Authorization (RMA) mechanism. The same mechanism may be used for other account adjustments other than actual returns, for example freight adjustments, etc. In fact, in some sense, the RMA mechanism may be regarded as a garbage can of sorts—any action that is later found to be incorrect, for any reason, can be reversed through the RMA mechanism. Furthermore, the existence of an RMA has immediate effect throughout the system, on purchasing, receiving, installation, shipping, accounts payable, and accounts receivable. For example, if an RMA is received and the corresponding vendor invoice has not yet been paid, the vendor invoice will not be paid until the return product is received and shipped back to the vendor and a credit received from the vendor. The immediacy of the effect of creating an RMA is achieved through the use of a central underlying table—item detail—that functions as the building block upon which other tables depend. In essence, most data is viewed within the system simply as a "window" into the item detail table.

An RMA may also be used for warranty replacement parts. This feature, coupled with Web access, allows customer's to track replacement parts themselves without contacting a technician or service representative. A customer may request an RMA in any of the ways previously described for obtaining a quote or placing an order. When an RMA request is received, an RMA record is created. An RMA screen display is shown in Figure 73.

Referring again to Figure 63, a MWS display includes an RMA button. When this button is clicked, the user is prompted to select an item from the displayed MWS for return. An Add RMA Record screen display such as that of Figure 74 is then used to specify return type, reason, etc. A typical RMA has two "sides," the customer side and the vendor side. When the item to be returned is selected, preferably both the customer side and the vendor side are filled out by the system. Any changes may be made from a screen display such as that of Figure 75. By clicking a button, the screen display of Figure 75 allows for display of the customer side only, the vendor side only, or both sides of the transaction, as well as claims information.

A return may be made for any of a number of different reasons. Different return types are therefore defined. Depending on the return type, some RMA fields will not be applicable. Preferably, the system is provided with sufficient intelligence to automatically fill in these fields as "N/A."

As shown in Figure 76, a lookup table may be used complete various fields of an RMA record based on the selected return type. If a return is for credit, for example, then return type 1 is the corresponding return type. Depending on whether payment was by check, credit card or credit memo, different fields may be applicable. In the present example, however, the mode of payment does not affect the manner in which the RMA is completed. As noted previously, an RMA has both a customer side and a vendor side. In Figure 76 therefore, each table cell has an upper half corresponding to the vendor side (V) and a lower half corresponding to the customer side (C). To take a few example fields, in the case of a return for credit, no replacement product is called for, hence the Repl MWS column is marked N, for no. Since no replacement product is expected, then on the vendor side, the Rec'd column is N/A, and on the customer side, the Ship column is N/A. Similar logic dictates the way in which the remainder of the table is completed.

Similar logic tables may be used to automatically approve RMAs and provide an RMA number instantaneously for most RMA requests. Again, approval has a customer side and a vendor or manufacturer side, at least in the case of a virtual inventory model. (RMAs eliminate, or at least minimize, the hazard of accumulating obsolete inventory as a result of returns.) In an exemplary embodiment, a series of limit checks are performed on an RMA request. Referring to Figure 77, a limit file is shown, having a customer portion, a vendor portion and a manufacturer portion. Assume once again that the return type is return for credit, and assume further that the payment mode was check. The first column has a Y value, indicating that automatic approval of RMAs of this return type are allowed. The next three columns relate to the manufacturer and contain the values Y, Y and N, respectively, indicating that for the RMA to be approved the manufacturer must allow returns, that the manufacturer must further allow open box returns, and that the time to RMA cannot exceed the manufacturer's allowed maximum time duration. For a particular manufacturer, the manufacturer's specific return policies are stored in a table such as that shown in Figure 78.

Referring again to Figure 77, the next two columns relate to vendor and contain the values N and N/A, respectively, indicating that the time to RMA cannot exceed the vendor's allowed maximum time duration and that the vendor's restocking fee policies are not applicable for this type of return. For a particular vendor, the vendor's specific return policies are stored in a table such as that shown in Figure 79.

Referring again to Figure 77, the next four columns relate to customer and contain the values N, N, N and N/A, respectively, indicating that the time to RMA cannot exceed the maximum time duration allowed for this customer, that there must be no restocking fee, that the sales price cannot exceed the maximum allowed for this customer, and that customer service fee policies are not applicable for this type of return. For a particular customer, specific return policies for that customer are stored in a table such as that shown in Figure 80.

If an RMA request meet all of the applicable automatic approval criteria, then it may be automatically approved, instantly, and an RMA number communicated to the customer as shown, for example, in Figure 81.

A more detailed listing of RMA types, subtypes and conditions is provided in Figure 159.

Business rules implemented by the RMA module include the following:

1. RMAs can only be created for items shipped to customer.
2. One item per RMA (quantities are OK).
3. Replacement Quotes are created by the user specifying the appropriate replacement product.
4. Generation of printed/faxed RMAs with Return packing slips for customer use.
5. Receiving can only receive items from customers with valid RMA issued.
6. Wrong or defective products automatically create RMAs.
7. Replacement MWSs can only be shipped after being released by purchasing.
8. Vendor RMAs must have vendor RMA numbers before shipping.
9. Complete control of RMA module by executive group.

One characteristic feature of the present system perhaps most evident in relation to RMAs is the display of information in a very complete way and in such a manner as to allow ready interaction. In conventional database applications, information is presented in simple row format within an output display. Multiple levels of "drill-down" may be required to display a particular detail. Furthermore, entry or manipulation of information can typically only be performed from a separate input screen.

In the case of the present system, by contrast, as exemplified by the RMA display of Figure 73, records are presented in a very information-rich format. Entry or manipulation of information is enabled within the same screen display. In the case of RMAs, for example, a user with the proper authority is able to approve or cancel an RMA, change an RMA to a different type, release a replacement shipment, etc.

A further important feature also greatly facilitates convenient navigation and ease of use. In most systems, to display related records, a search editor is used to enter a search. In the present system, by contrast, a "related-switch" menu bar is provided within most displays. Using this related switch feature, a user may select one or more records within the output display and select a related file from a pop-up of related files. The system then searches in the related file for records related to the selected records and displays the related records in the output display format of the related file. In the case of RMAs, for example, the related switch capability may be used to switch to related customer invoices, vendor invoices, credit memos, etc. One file may be related to another file but only indirectly, through a third file. In this instance, an intermediate search is required, the results of which are not displayed. Of course, the number of intermediate files may be more than one.

Preferably, vendors are given access via the Web to RMA information pertaining to them. A vendor may then immediately provide an RMA number without requiring any human intervention.

With vendor access to purchasing information, receiving information, expedite information and RMA information pertaining to that vendor, a truly integrated supply chain results. Such an arrangment makes global commerce just as convenient as local commerce. For example, a seller may have ten or hundreds of vendors worldwide, many in locations where the time difference would ordinarily make doing business difficult and tedious. Such difficulty is removed in the case of the present system, because all of the intelligence needed to do business resides in the system and is readily accessible at each party's convenience wherever in the world that party may be.

As previously described in relation to PRIS, the present single-database system contains information about installation and product configuration. This information may be used to advantage to avoid a common problem encountered in relation to RMAs. When a product is returned that has other add-on products installed, the user may forget to remove these add-on products before shipping the product to be returned. For example, a printer may have installed a memory upgrade and a network card. If the printer is returned to the vendor with the memory upgrade and the network card installed, there is some likelihood of the memory upgrade and network card being removed during service and not re-installed. These add-on products may then become lost.

To avoid this problem, when an RMA is requested for a product that has had one or more add-on products installed, a dialog is displayed to the user reminding the user to remove the add-in products prior to shipping back the product. The same reminder may instead, or in addition, be sent by e-mail, fax, etc.

The PRIS capabilities described previously may also be used to advantage to track RMA status and display status information via the Web. The stages of an RMA typically include some or all of the following: 1) shipped from customer to reseller; 2) received by reseller; 3) shipped by reseller to vendor; 4) received by vendor; 5) shipped by vendor; 6) received by reseller from vendor; and 7) shipped from reseller back to customer. With the possible exception of number 5, status information with respect to each of the foregoing stages is available within the database or, in the case of number 4, through conventional electronic tracking services offered by carriers such as UPS, Federal Express, etc.

Design Philosophy: Self-Correcting Knowledge-Based System

The information-rich action-oriented displays previously mentioned are a manifestation of a design philosophy in which a system knowledge base is continuously expanded with user assistance and reflected in the manner in which users interact with the system. Other manifestations of this design philosophy are found in the options described previously (Table 1 and Figure 124 through Figure 128) and the experiential constraints alluded to previously and described in greater detail hereinafter. Referring to Figure 129, a knowledge base is initially created based on system analysis and design considerations, considering the range of possible outcomes at each stage of the business process, and considering further the goal of total automation, phones free and paper and pencil free. These system analysis and design consideration will necessarily be incomplete—hence the need for dynamic workflow. No pretense is made that a single predetermined workflow definition will prove adequate in practice.

The knowledge base affects user interaction with the system through two different kinds of displays, a data input display and a process display. The data input display is used to actually enter data into the system. During the course of data entry at entry points E1-E9 (Figure 59), rigorous entry qualification occurs to eliminate errors. In the case of PRIS, for example, during receiving, only ordered items are allowed to be received. To cite a further example, during vendor invoice entry, described hereinafter in relation to Figure 121 through Figure 123, the system detects an attempt to enter a duplicate invoice number and prevents the duplicate from being entered. The process display is used to act on the data within the system to move an item to the next stage, and in the course of such action has the effect of changing the status of records acted upon. In the case of RMAs, for example, the user may easily, with the click of a button, approve or cancel an RMA, issue a customer credit memo, change the N/A settings of the RMA, etc. In the case of expedite, the user may easily, with the click of a button, record the reason that a product has not been received. To cite further examples, in the case of vendor invoices and customer invoices, described hereinafter, the user may easily, with a click of a botton, mark a vendor invoice for approval or cause an aging report window to be displayed for customer invoices.

The knowledge base and the application of it to data input and user actions is what makes an automated, end-to-end, sequential business process possible. Depending on the skill level of the user, the user is given some level of authority ranging from minimum authority to maximum authority. For users with minimum authority, the system ensures that work gets done in a prescribed, correct manner. For users with greater authority, dynamic workflow provides myriad additional possibilities while maintaining accountability.

During use of the system, unanticipated circumstances are bound to arise in which the user cannot accomplish his or her task (or accomplish it as well) in a phones free, paper and pencil free manner using the current features of the system. In this event, the knowledge base of the system is then added to to solves the user's problem. In some instances, the user may be able to add to the knowledge base directly. For example, the user may wish to add a further return type by adding an entry to the table of Figure 75. Similarly, in the case of factual performance evaluation, described hereinafter, the user may choose different performance metrics or combinations of metrics to be tracked and displayed. In other instances, adding to the knowledge base may require administrative intervention. In the case of the options of Table 1 and Figure 124 through Figure 128, adding further options may require the efforts of a programmer.

Having described for an order the course of events in the product domain, the course of events in the payments domain will now be described, first in relation to sales tax and sales commissions, then in relation to customer payments and finally in relation to vendor payments.

Sales Tax and Sales Commissions

Sales tax and sales commissions are automatically computed and stored in the system based on applicable tax rates and commission rates.

In the case of sales tax, a sales tax table contains state tax rates and local tax rates. For a particular sale, the applicable tax rate is determined based on the ship-to address. Typically, preliminary tax payments are made each month and a final tax payment is made each quarter. Sales tax records are automatically added to a sales tax register (first prepayment, second prepayment, or final quarterly payment) for the appropriate period. As shown in Figure 82, the sales tax module automatically calculates the figures to be entered on each line of a sales tax return, or may be programmed to print out the actual return.

In the case of commissions, commission rates are stored within a Sales Rep file and a Sales Support file. Because each order is worked on by both outside sales and inside sales, each order will typically have two commissions. Commission records are created at the time a customer invoice is issued. Commissions are then approved and scheduled to a commission register for payment in a similar manner as accounts payable, described hereinafter. Multiple levels of commissions are provided for. A simple example of multiple commissions is where an outside salesperson responsible for customer interface is supported by an inside salesperson that reviews orders for correctness and troubleshoots the order, if necessary, during the fulfillment process. In more complex organization structures (e.g., multi-level marketing), the number of commissions may be greater than two.

Accounts Receivable

When an order is shipped, a customer invoice is automatically issued, i.e., entered into the computer system. If paper invoices are required, then at regular intervals (each day, for example) an accounts payable clerk prints out, checks and mails customer invoices issued during the preceding interval. (Alternatively, the printing and mailing of customer invoices may also be automated.) In an exemplary embodiment, invoices are issued using the "Issue invoices" option within the customer invoice file. A customer invoice screen display is shown in Figure 83. With the passage of time from the invoice date, invoices pass from one category to another, e.g., 30 days, 60 days, 90 days, etc. At any time, the accounts payable clerk may view invoices within different categories. Also, as is the case with other output screen displays, the user is able to manipulate information and interact with the system, e.g., to analyze an account, add a comment or note, etc., all without paper and pencil.

Referring more particularly to Figure 84, from a MWS output screen display, the user can select a group of invoices and click on a collections button to cause a collections summary to appear. By further clicking on a By Customer button, the selected invoices are broken down by customer as shown in Figure 85.

When a customer payment is received, a payables clerk clicks an add record button to add a customer payment record. The clerk is then presented with a pick list of customers. The clerk selects the customer from which the payment has been received. The customer is then prompted in turn to enter the mode of payment (check, cash, etc.) and the payment date. A customer payment record such as that shown in Figure 86 is created. A payment may correspond to multiple invoices. The clerk enters from the check stub reference numbers and invoice numbers, as well as the respective amounts, for each invoice (or credit) to which the check purportedly applies. Referring to Figure 86, for example, the check #429069, as indicated on the check stub, pertains to five different items, or reference numbers, the first three of which are invoices and the last two of which (DM32890/4829 and

DM32889/4695) are credits.

After the reference and invoice numbers have been entered from the check stub, the system attempts to match the entries to the corresponding invoices within the system. The clerk is prompted to enter the type of each item (e.g., invoice or credit) and the amount indicated on the check stub. The system then checks to see if the amounts indicated coincide with the expected amounts stored within the system and indicates each item as being reconciled or not reconciled. The clerk then saves the record, which may then be approved and posted by supervisory personnel.

Discrepancies may occur between payment amounts and invoice amounts, i.e., both overpayment and underpayment may occur. An OverUnderPay file is used to track and resolve such discrepancies. An OverUnderPay screen display is shown in Figure 87. A corresponding record detail screen display is shown in Figure 88. OverUnderPay is an example of dynamic workflow and allows for the application of user discretion in handling overpay and underpay situations given the requisite authority.

Business rules implemented by the A/R module include the following:

1. Invoices will be automatically created on shipment of products to customers.
2. Items can only be invoiced once.
3. Invoices must be issued by accounting before they are valid.
4. EDI invoices are provided for. EDI invoices will automatically be sent via EDI.
5. EDI invoices PID numbers must match PO PID numbers in the EDI file.
6. Customer invoice numbers indicated on the check stub must match with existing customer invoice numbers in the system. The amounts must correspond, else an overpay/underpay records is created as described above.

Customer Collections

An important object of the present system is to allow routine operation of an entire business without paper and pencil. In the course of performing a business function, a person will typically gather information from various sources and jot down the information for reference while performing the business function. This reliance on paper and pencil is perhaps most apparent in the area of customer collections. Every invoice to be collected presents a different situation, as does every customer. Previous contacts with the customer may need to be followed up on, or, conversely, the customer may become annoyed at too frequent contact.

The present system overcomes these problems by providing a highly-usable customer collections "environment." Referring more particularly to Figure 141, the customer collections environment is shown within the bottom portion of the screen. Within the top portion of the screen is displayed a Customer Invoice output display showing selected invoices of a particular customer.

The customer collections environment within the bottom portion of the screen is composed of various different panels. A "Get" panel presents aged A/R information and allows the user to retrieve invoices within the different age categories. Pressing "Get" for a particular category causes the corresponding invoices to be listed within the Invoice panel to the left, from which the user can select a particular invoice for display.

The "Get" panels also provides a get Problem/Tickler option. Each invoice may be marked with one or more problems and/or one or more ticklers. When an invoice is selected, problem codes representing problems associated with that invoice are displayed within a Problems list box. Similarly, ticklers associated with that invoice are displayed within a Tickler Log. The user can add and remove problems and ticklers to and from an invoice as appropriate.

A Contact Log is used to record contacts and attempted contacts with the customer. For example, if the customer says "Please don't call again for six weeks," this information can be recorded in the Contact Log. Below the Tickler Log is located a financial summary of the current selected invoice. Below the Contact Log is located payment details of the current invoice. Below the financial summary panel are located text box for invoice-specific notes and invoice-specific keywords. The ability to assign keywords to record and retrieve records using those keywords is provided for the user's convenience. Below the payment details panel is located customer contact information, and to the right of the customer contact information is located a text box for customer-specific notes.

In Figure 141, the user has selected a Get Problems option. As shown in Figure 143, a text box is then displayed listing various possible problems. To mark an invoice as having a particular problem, the user selects that problem and clicks OK. If instead the user selects Get Tickler, a text box as shown in Figure 144 is displayed listing various ticklers. To mark an invoice with a particular tickler, the user selects that tickler and clicks OK.

Referring to Figure 142, the user may also search for invoices within particular categories, regardless of whether a particular invoice has been marked as having a problem or not. The categories (e.g., "With addendums," "Replacements without credit memo," etc.) will typically have implications that affect collection. Dealing with categories of invoices in this manner increases efficiency.

Because all of the relevant information needed to perform collection, including client contact information, is captured in the database and displayed in a readily-accessible and usable fashion, the collections function can be performed by a relatively unskilled worker following a minimum amount of training. Furthermore, the collections function may be performed by one person one day and another person the next day without confusion or loss of effectiveness, minimizing the effect of sickness and/or employee turnover.

Accounts Payable

The accounts payable module is designed to ensure that invoices are timely paid but to prevent double payment, overpayment, etc., and to systematically resolve problems with invoices so that they may be paid. The payment policy may be more or less aggressive. On the aggressive side, for example, the system may provide that a vendor invoice is paid only after a corresponding customer payment has been received, thereby assuring a stable cash flow.

A vendor invoice screen display is shown in Figure 89. When vendor invoices are received, they are entered within a grid such as that of Figure 90. The invoice number and PO number are entered manually from the invoice. The payee and vendor are preferably selected from pick lists. The invoice date, total billed, tax and freight are entered manually from the invoice. For each entry within the Add Invoices screen, a vendor invoice such as that of Figure 91 is created. Based on the PO number, the system displays items sold from the MWS (with or without addendum, or possibly even multiple addendums) to which the invoice pertains.

The vendor payment process begins by an accounts payable clerk invoking a Daily Vendor Verification option. Referring to Figure 92, this option identifies all of the open vendor invoices and runs them through a "sieve" to determine which invoices are "clean," i.e., fully reconciled, and which invoices are not clean, i.e., have discrepancies. Within each the categories clean and not clean, there are numerous sub-categories arranged in order from most important to least important. A given clean invoice may in fact fall within several sub-categories, but is categorized at any given time into the highest sub-category to which it belongs. Similarly, a given invoice that is not clean is categorized at any given time into the highest sub-category to which it belongs. By double clicking on a particular category, invoices belonging to that category are displayed. Typically, the payables clerk will pre-approve clean invoices for approval by supervisory personnel having authority to approve payment. Invoices that have been approved are then scheduled by the payables clerk to a payment register, an example of which is shown in Figure 93, for payment in accordance with their respective due dates.

For invoices that are not clean, the payables clerk displays invoices from the highest sub-category, investigates each invoice and attempts to fix the particular discrepancy involved with that sub-category. The same approach is followed with the invoices of each sub-category in turn. The verification is then re-run. Some invoices may have become clean, whereas other invoices may have passed to a next-lower sub-category but may still not be clean.

Referring again to Figure 90, prior to entering invoices, the user is prompted as to which type of invoices to be entered, including as one possibility freight bills. When a freight bill is entered, the user enters the invoice number, PO number, and payee (the latter from a pick list), and instead of a vendor list, picks a carrier from a carrier list. The user is then prompted to enter a date range specifying a period to which the freight bill pertains (Figure 94). Shipping records are then searched, and freight charges for shipments with the specified carrier during the specified period are totalled. Invoice entry is then completed in the usual manner. If the invoice amount entered from the invoice equals the expected total charges, then the resulting invoice record is marked reconciled. If not, then the invoice record is marked not reconciled.

Qualification of user inputs, previously described, occurs at each entry point E1-E9 of Figure 59 but is most readily illustrated with respect to invoice entry. Figure 121, Figure 122 and Figure 123, respectively, illustrate various warning dialogs used to prevent entry of erroneous data. If entry of a duplicate invoice number is attempted, for example, a dialog such as that of Figure 121 is displayed, and the system refuses to permit the duplicate entry. If an attempt is made to enter the same invoice twice during an entry session, then a dialog such as that of Figure 122 is displayed. If the system detects that the same invoice number has been used previously but with respect to an apparently different vendor, then the user is notified (Figure 123) and may choose whether or not to proceed.

Note that each item can have only one active customer invoice and one active vendor invoice. This feature prevents may common AR/AP errors. For example, if duplicate vendor invoices are received in relation to a single item, only one of those invoices will be matched with the item record representing the physical item. The other vendor invoice finds no place in the system.

Business rules implemented by the AP module include the following:

1. Items can only be billed once by a vendor.
2. Vendor invoices must reconcile with purchasing costs and terms (freight, tax, payment dates, etc.).
3. No duplicate vendor invoices are allowed. A vendor invoice is identified by a combination of vendor invoice number and MWS number. Hence, the same vendor invoice number may be billed against different MWS numbers (since some vendor's numbering systems may generate duplicate numbers), but not against the same MWS number.

Vendor verification is merely exemplary of a more general methodology for accomplishing a business task. This more general methodology allows a user to perform a business task without the need to refer to different sources of information. In an exemplary embodiment, it involves the following steps:

1. A classification scheme is specified, consistent with common business practice and terminology.
2. An algorithm is applied whereby items are classified, marked and displayed according to category.
3. Within a single display screen, the categorized items are displayed along with one or more user interface controls for taking action with respect to an item.

The items may be items within any of the foregoing domains—products (e.g., computer equipment), payments (e.g., vendor invoices, customer invoices, payment registers), performance (e.g., accounts), or personnel (e.g., activity summaries). Furthermore, the items may be single items or groups of items (e.g., master worksheets).

Other exemplary uses of the foregoing methodology will be briefly described. Still others will be apparent to those of ordinary skill in the art.

The items may be customer invoices and the business task may be collections. The invoices may be classified into various classifications according to the reason for non-payment, e.g, never received, return requested, price discrepancy, etc. The items may be order items and the business task may be an expedite task. The items may be classified into various classifications, e.g., vendor lost order, (re)seller lost item, item damaged, wrong item, empty box, etc. The items may be master worksheets and the task may be purchasing. The master worksheets may be classified into various classifications, e.g., replacement MWS, addendum, internal use, etc. The items may be payment registers and the business task may be reporting. The payment registers may be classified into various classifications according to payee, e.g., vendor, federal government, state government, local government, service providers, etc.

Nightly or Periodic System Update

In addition to the foregoing business rules, or experiential constraints, implemented within each of the individual modules, recall that cross-checks between various domains are performed at intervals. Such cross-checks may be performed nightly or at other periods of low system activity. When performed nightly, the cross-check routine may be referred to as a nightly update. As a result of the nightly update, a nightly update report is generated, all or selected portions of which are automatically emailed to responsible individuals for receipt the following morning. An example of a nightly update report is provided as Appendix A.

General Ledger and Real-time Financials

Having described for an order the course of events in the payments domain, the course of events in the financial performance domain will now be described. .

The most "tasking task" for most small- and medium-sized business is accounting. Accounting packages typically come in one of two flavors, packages for non-accountants that mask the complexity of generally-accepted accounting principles (GAAP) but do not provide information in "accountant-ready" form, and packages for accountants that are not readily understood or used by non-accountants. The need for real accounting documents coupled with the difficulty of producing them has necessitated considerable reliance on accountants, either outside accountants or full-time paid staff. If an outside accountant is used, the accountant brings the books up-to-date only at intervals. Even in the case of full-time paid staff accountants, the books are typically brought up to date only monthly, or at most weekly, because of the arduousness of the process. Typically, invoices are reviewed and confirmed, then manually posted, then a trial balance is run, adjustments are made, etc.

Accounting information is presented in the form of financial statements. Information about each item appearing on the financial statements is gathered in an account. An account exist for each asset, liability, revenue, expense, and category of owner's equity of a company. More particularly, the classic accounting process involves the following steps:

1. Analyzing business and financial transaction to determine if they affect accounts;
2. Journalizing transactions affecting the accounts;
3. Posting journal entries to accounts;
4. Determining the balance in each account using incoming bank statements;
5. Preparing a total of all the account balances, called a trial balance;
6. Determining whether any adjusting entries are necessary and journalizing and posting such adjusting entries;

7. Preparing financial statements;
8. Closing income statement accounts and establishing ending balances for use in the next accounting cycle.

In classic accounting practice, the effects of a transaction are not recorded directly into the accounts. Rather, they are recorded in a journal entry in a general journal, or general ledger (GL). The process of transferring the information from the journal entry to the accounts is called posting. At the end of the fiscal period, before making any adjusting entries, an accountant prepares a schedule listing all the individual account titles and their respective debit or credit balances. Following the trial balance, various adjusting entries may be required to assure that revenues are reported in the period they were realized and that all expenses are matched with the revenues they produced. An adjusted trial balance is then produced. Financial statements are generally prepared on worksheets from the adjusted trial balance. Whereas balance sheet accounts are permanent (or real) accounts, income statement accounts are temporary (or nominal) accounts. Because the data collected in an income statement account is only for the current fiscal period, the balance is not carried forward but is eliminated at the end of each fiscal period. The process of eliminating the balance in each of the revenue and expense accounts (by transferring the balance to a different permanent account) is called closing the accounts.

As a result of the cumbersomeness of the foregoing process, management processes accommodate the limited availability of accounting-derived management information. In reality, however, the need for management information is constant and ongoing, and cannot be expected to synchronize itself to the availability of accounting information without sacrificing performance.

The present software takes a different approach to financial performance activity. In contrast to typical practice in which an accountant gathers data from all departments and performs accounting functions after the fact, in the present system, accounting functions are performed concommitant with data entry. Instead of manual posting of accounting entries, posting is automatic, either continuous or at user-specified intervals (e.g., nightly). For non-accountants, the complexities of accounting are hidden completely—users simply go about their usual activities of running the business. The automatic posting process, however, generates entries in GAAP format. Furthermore, instead of a limited number of "canned" reports, a GUI-based report-writer is provided that allows any kind of report to readily generated, either on command or on schedule. At any time, a user may simply press a button and obtain a real-time, accurate financial report.

Because posting is automatic, posted entries are not guaranteed to be correct. (Because of the stringent qualification of user entries, however, errors are greatly minimized.) Therefore, unlike conventional accounting packages, entries are allowed to be modified. In the case of invoices, for example, invoices are allowed to be modified up until the time they are paid. As invoices and other records are viewed and modified, they are flagged to be checked by a centralized GL module to determine if the modification requires an adjusting entry. If so, the adjusting entry is made automatically alongside the original entry.

Although in an exemplary embodiment the GL module is a centralized module, the functionality of the GL module may be distributed among the various modules so as to operate continuously. For example, an AR portion of the GL functionality would make general ledger entries immediately to reflect payment information as it is input, a purchasing portion would make general ledger entries immediately to reflect obligations as incurred through purchase orders, etc.

To use the real-time financial capabilities of the present system, the user sets up accounts, then assigns accounts to different line items of records within the system. More than one account may be assigned to a line item. If only one account (i.e., a single default account) is assigned to a line item and an automatic posting option is selected, then the line item is automatically posted to that account.

Default accounts are set up for various different files, such as AP, AR, cash, credit card transactions, commissions, payroll, etc., as shown in Figure 95. The manner in which these defaults are established will be described.

Accounts are set up within a chart of accounts. The chart of accounts keeps a record of each account including the name of the account, type of account, account code, etc. To add an account, the user enters information about the account within an entry screen such as that of Figure 96. Whereas debits and credits are intelligible primarily to accountants, increasing and decreasing a balance are concepts easily understood by non-accountants. Hence, when an account is first established, a button is selected designating whether the account balance is increased by a debit or by a credit. Thereafter, user may use the more familiar concepts of increase and decrease. An exemplary chart of accounts display is shown in Figure 97. Doubling clicking on a particular account results in a display such as that of Figure 98. The date of each transaction contributing to the balance is shown, together with an explanation, the journal reference number, and the amount. This screen display may be used to modify account information as necessary.

For accounts receivable, a correspondence between line items on a customer invoice and specific accounts is set up through a customer setup display, shown in Figure 99. Generally speaking, each of the different list boxes corresponds to an amount that is (or is derivable from) a line item (or multiple line items) on the customer invoice or other record. The account or possible accounts to which the amount is to be or may be posted are specified by clicking the "+" button and selecting from a pop-up list of accounts of the appropriate type. If multiple accounts are selected, one may be selected as a default account, the effect of which is explained hereinafter. If for each list box only a single account is selected and is designated as the default account (using the Set Def button), then posting is automatic and is performed on a continuous basis or at regular intervals (e.g., daily). As a result, a truly up-to-date financial report can be run at any time.

Referring to Figure 100, an accounts receivable display is shown in accordance with an exemplary embodiment of the invention. For each customer account, there is shown the GL account to which balances are posted, the current account balance, and amounts 30, 60, and 90 days overdue, respectively. By double-clicking on a balance field, transactions records relating to that balance field are displayed. For example, double-clicking on the current balance of $2,712.75 shown in Figure 100 results in a display such as that of Figure 101. The date of each transaction contributing to the balance is shown, together with an explanation, the journal reference number, and the amount.

Corresponding screen displays for accounts payable as those of Figure 99, Figure 100 and Figure 101 for accounts receivable are shown in Figure 102, Figure 103 and Figure 104, respectively.

If the setup of accounts indicates that an amount may be posted to more than one account, then manual account distribution is required. Referring to Figure 105, a pop-up screen display used for this purpose is shown. The assigned accounts are displayed, and the user enters debits or credits for the accounts as appropriate. The effect of a debit or credit (increase or decrease in the account) is displayed as an aid to the novice user.

Referring to Figure 106, a general journal display is shown in accordance with an exemplary embodiment of the invention. For each transaction there is displayed a journal reference number, account titles and explanation, and posting reference to the account codes of the accounts debited or credited as result of the transaction. Doubling-clicking on a particular account results in a display such as that of Figure 107. The date of each transaction contributing to the balance is shown, together with an explanation, the journal reference number, and the amount.

As a result of the continuous, automatic posting activity described, once a financial report has been defined, it may be run at any time (or at scheduled times) and is assured to be up-to-date. Moreover, it is verifiable, i.e., every supporting transaction may be readily retrieved and viewed. In an exemplary embodiment, a financial report is defined using a display screen such as that of Figure 108. The display follows a familiar spread-sheet-like format. For each line of the report, a line item description is entered. Then, in the appropriate column, the user enters either an account (by selecting from the chart of accounts pop-up), a calculation formula, or even the result of another report. When a report is run that requires the result of another report, that other report is run first. An actual report generated using the report definition of Figure 108 is shown in Figure 109.

A report, instead of being the line-time type of Figure 109, may be a trend analysis report. Trend analysis provides a powerful tool for understanding inter-relationships between various aspects of a business. Referring to Figure 110, a trend analysis report is defined in similar manner as an ordinary financial report. A cell is selected and the user is prompted as to whether the cell contents is to be a local balance, a linked field (from another report), or a calculated field. In the illustrated example, local balance is selected, and the user selects an account from the chart of accounts pop-up, in this instance Cash in Bank #1. To investigate the inter-relation of different accounts, a further account would then be selected, say Trade Accounts Payable. Plot labels may be entered by the user that differ from the actual names of the accounts themselves. Referring to Figure 111, a trend frequency is then selected. In the example of Figure 111, the trend frequency has been set to daily. The trend analysis is then run and the raw data displayed as shown in Figure 112. Referring to Figure 113, various graphing options are provided. In the illustrated example, the data is presented in the form of line graphs.

Trend reports, aside from comparing one account to another over the identical period, may also compare the same account over different periods. Hence, in the case of both financial reports and trend analyses, an important feature is that the date range of the report is arbitrary. Historical data for all past periods (or at least a considerable number of past periods) is stored in the database, enabling reports to be run for any period of time, not just the current period.

Human, Group and Organization Performance

Having described for an order the course of events in the financial performance domain, the course of events in the personnel domain will now be described.

By and large, present-day work activities are based on the model of an 8-hour work day, 40-hour work week. What is tracked quantitatively is time and attendance. Actual performance, by and large, is tracked qualitatively. Although such a model may have been adequate for the industrial revolution, it is inadequate and without basis for purposes of the information revolution. Instead, the present system allows performance to be quantitatively tracked.

Referring to Figure 114, there is shown a human resource infrastructure for a virtual organization performance evaluation model. All company personnel are linked to a digital "HR backbone," including operational management (V.P.s, managers), engineering, strategic management (president), financial and legal personnel (CPA, lawyer), and staff within various departments (customer service, shipping/receiving, technical, accounting, purchasing, etc.). In concept, the HR backbone could be any information conduit. In an exemplary embodiment, the HR backbone is realized by the same integrated, Web-enabled, client/server database as described heretofore. Various functional blocks manipulate data stored within the database and form a personnel module.

Two functional blocks in particular from the basis for performance evaluation, a Measurement Factors block and a Score Keeper block. For each individual whose performance is to be tracked, a list of tasks performed by the individual is compiled, together with an estimate of what percentage of the individual's overall assignment each particular task constitutes. Using this information, the individual participates in the setting of realistic goals within various categories. These goals are stored so as to readily accessible to the individual for frequent review. The goals in turn dictate measurement factors/parameters tracked by the "descriptive" Measurement Factors block. These factors/parameters form the answer to the question "What is the pertinent data within the database upon which to evaluate the performance of the individual?," both individually and as a team player. Suggestions received from within the organization may influence the pertinent measurement factors/parameters.

The question, "How should the data be viewed?" is answered by a group of "normative" functional blocks. These blocks generate outputs to the Score Keeper block, which measures the degree of success or failure with respect to each goal. The same outputs are input to a "presentation" block that serves to educate employees as to the effects of various normative performance measures on financial performance and on factors affecting customer satisfaction, to help employees identify trends, etc.

Customer feedback (both commendations and complaints) are preferably also be received by and input to the system. A firewall provides security for internal data and allows limited access by customers to provide feedback. Customer feedback, although not strictly objective like the other factual measures of performance tracked by the database, can be an important indicator of performance.

Referring to Figure 115, a more detailed view is shown of the kinds of data stored in the human resources portion of the database. With the exception of data relating to performance measurement factual review, the data represented in Figure 115 is static or semi-static data that changes relatively infrequently or not at all. The top portion of the figure relates to candidate data, whereas the bottom portion of the figure relates to employee data.

For candidates, data stored in the database includes personal data, previous employment data, and previous performance data. The data is obtained from the candidate and from other outside sources, and may also be made available to the candidate, e.g., through the Web. During the hiring process, employment documents are scanned (or input directly by the candidate during the application process) into the database. For employees, data stored in the database also includes personal data, employment data and performance data. In addition, for employees, data regarding achievements and special recognition is stored.

Performance measurement factual review is dynamic in nature and may be performed in a manner illustrated in Figure 116. Depending on the organizational level, performance measurement is either financial-oriented or assignment oriented. For branches, divisions, subsidiary companies and their parent company, for example, performance measurement is financial-oriented and uses financial analysis algorithms. In particular, using the universal financial report generator described previously, any desired financial ratio may be tracked, as well as any arbitrary combination of account codes in order to discover relationships. Cash flow statements and budget analyses may also be generated. Based on this information financial performance goals may be set and contributing goals may be accurately derived.

At the department, group and employee level, performance measurement is assignment oriented.

Referring to Figure 116, evaluation of human performance is made possible by collecting an assemblage of activity data to which analysis algorithms may be applied. This assemblage of activity data is referred to as Algorithm of Activity Data. For each different assignment (e.g, Quotes, MWSs, Customer Invoices, etc.), activity is tracked in three principal ways: quantity per period, dollar volume by period, and time between stages of completion (e.g., time from posting of quote to conversion to MWS). The relevant period is preferably user-selectable. In addition, the responsible department and the upstream and downstream departments that affect and are affected by the assignment are identified (and refined, if necessary, as experience with the system is gained). RMAs affect all assignments and are therefore tracked in relation to each assignment. For example, quotes made during a period may total one million dollars but may have ultimately resulted in half a million dollars of RMAs.

The Algorithm of Activity Data serves as a foundation for human performance evaluation. Referring to Figure 117, for each individual employee to be evaluated, various metrics from the Algorithm of Activity Data are chosen and tracked for that employee, resulting in Employee Specific Task/Assignment Activity Data. Different aspects (e.g, quantity, dollar volume, completion times) of an assignment (e.g, Quotes, MWSs, Customer Invoices) may be chosen as metric for evaluation for a particular employee.

The Factual Performance Analysis Measurement process performs calculation on the Employee Specific Task/Assignment Activity Data, for example calculating time "deltas" between different stages of completion of an assignment. Resulting data is supplied to at least three destinations: a Measuring Algorithm, a Historical Data Comparison Algorithm, and an output display structure, indicated by dashed lines. The Measuring Algorithm compares actual performance to desired performance established by goals. Preferably, goals are set by employees in consultation with management. In an exemplary embodiment, the Measuring Algorithm compares actual performance to desired performance in three different categories: routine assignments (daily, on-going), scheduled tasks (not on-going) and special projects (typically short-lived). In addition, unique date-independent measurements may programmed, for example as alerts. For example, the user may program the Measuring Algorithm to alert the user whenever the time delta between creation of a quote and posting of the quote is seven days or greater. Various priorities may be established in accordance with corresponding parameters. For example, a particular order may be marked as critical, causing an alert to be displayed if there is any slippage in schedule.

The Historical Data Comparison Algorithm archives the daily output of the

Factual Performance Analysis Measurement and the Measuring Algorithm blocks and allows for comparison of performance data for different dates.

Within the output display structure, a hierarchy of views is presented. A first view is a complete list, based on the Algorithm of Activity Data, of departments and the tasks and projects for which they are responsible. From this complete list, the user may create the users own “short list” of departments for performance review. Different layers of management, for example, may have different departments within their scope of review.

To display performance data, the user selects a department, causing performance data to be displayed for the department as a whole. The user may further select a specific individual within that department, in which case a Dynamic Personal Tracking view is displayed. The Dynamic Personal Tracking view displays all of the chosen metrics for the selected employee. From the Dynamic Personal Tracking view, the user may transition to a Factual Performance Display. The Factual Performance Display is a subset of the Dynamic Personal Tracking view and focuses on those metrics presently deemed by the user to be most important (e.g., metrics related to sales growth, metrics related to customer service, etc.)

The Factual Performance Display highlights strengths and weaknesses of the employee and is linked, either automatically or manually, to static human resources “personal growth guides.” Based on the Factual Performance Display, it may be evident, for example, that the employee in question needs training in a certain area. In this manner, the system allows training efforts to be narrowly targeted where they will obtain greatest benefit. A career path may be charted for each employee that is calculated to maximize that employee’s potential.

Screen displays used for factual performance evaluation in accordance with an exemplary embodiment of the invention are shown in Figure 118, Figure 119 and Figure 120, respectively. Selection of an employee is accomplished as illustrated in Figure 118. Referring to Figure 119, performance results may be viewed for a single period or multiple periods, with the period being user selectable (a day, a week, a month, a quarter, etc.). In the case of the single period display, performance results for various performance metrics in different categories and sub-categories are displayed, for example: Productivity (A), including quantity per period (A1), dollar volume per period (A2) and percent profit per period (A3); Quality (B), including timliness (B1) and customer credit memos (B2); and Profitability (C). In the case of the multi-period display, the same information is viewable for multiple periods but, because of display contraints, not all of the information at the same time. Rather the user selects the categories and sub-categories of interest for viewing at any particular time. For example, if sub-category A2 is selected, then dollar volume per period is displayed for all of the periods (e.g., six).

Percolation—Automated Low-Level Decision-Making

In order to automate a small-to-medium size business, relatively complex tasks must be automated so as to be accomplished with a few clicks of the mouse. The present system accomplishes such automation using a technique referred to herein as "percolation." Percolation involves automatically classifying records of a given type into multiple classifications for workflow processing. One or more users interact with the relational database system to take a prescribed action with respect to multiple records having a particular classification. The records of a given type are classified into multiple classifications based on "experiential" criteria having real-world business significance based on past business experience. A record may belong to a multiple categories. Records are sorted in accordance with a hierarchy of categories such that a record belonging to both a category higher in the hierarchy and a category lower in the hierarchy is sorted into a group of records belonging to the higher category. The relational database system does not allow users to take at least some actions other than the prescribed action with respect to the records. Users interact with the relational database system to change information within records, whereupon the records are automatically reclassified.

Percolation may be applied to any business function, but has found to be particularly effective as applied to PRIS (purchasing, shipping, receiving, installation and assembly), vendor invoice verification, customer collections and processing of returns. Percolation may be single-level or multi-level.

Percolation as applied to vendor invoice verification has been described previously. As was previously observed, the hierarchy of classifications is important in order to obtain the desired results. To take advantage of dynamic workflow, however, it is desirable that a user having the requisite authority be provided with the ability to change hierarchies (specify a new order of classification), both within a single level and on multiple levels. There results a very powerful ability to "slice and dice" data records stored within the database, which in turn provides for dynamic response to outside influences.

Referring to Figure 150, percolation as it applies to purchasing will be described. Sales orders resulting from quotes undergo a first level of percolation to identify sales orders on credit hold, sales orders exceeding credit limits, sales orders with customer invoices 60 days or more past due, sales orders with freight problems, sales orders with installation, sales orders with installation and/or shipping problems, sales orders with a ship group, sales orders with partial ship, etc. As a result of this first-level percolation, certain orders may be placed on hold, or corrections may be made to the order as required.

There follows a second-level percolation at the item level preparatory to placing vendor orders. Items undergo percolation to identify items with higher sales cost than sales price, items with higher purchasing cost that sales cost, items on back order with groups (install/ship), rush items, items with back order received in a "no partial" sales order, items with promotion or rebate, etc. In accordance with one aspect of the invention, such percolation in effect identifies "critical path" items for fulfilling an order, items that will take the longest to fill based on availablity, installation instructions, shipping instructions, etc.

Corrections may be made and reclassification performed until such point as the user is ready to order. The user then prepares a purchase order request, either using a default vendor determined at the time the order was placed (lowest cost vendor) or selecting a different vendor. The vendor order may then be placed by posting via the Web, or the vendor order may be posted on the Web for bid. In the latter instance, bid results are received via the Web, and the vendor order is then placed based on the bid results. The order is filled by the vendor and shipped to the reseller or drop shipped to the customer.

Note that purchasing may or may not involve vendor selection. At the time a quote is created, a default vendor is selected based on lowest advertised price. Order information may, if desired, be automatically transmitted to the default vendor. In fact, N-tier order information may be automatically transmitted to multiple corresponding vendors as described more fully hereafter in relation to supply chain management.

Referring to Figure 151, percolation as it applies to receiving will be described. Sales orders for which vendor orders have been place and that need to be received undergo a first level of percolation to identify receiving sales orders to be refused or cancelled (because of RMA, for example), COD sales orders, express delivery, sales orders marked for special tracking (e.g., call upon receipt), replacement sales orders, no partial or restricted partial sales orders with only one item, sales orders expecting back order items, sales orders with installation, sales orders without installation, inventory sales orders, supply sales orders, RMA returns expected from customer, RMA returns expected from vendor, RMA returns requiring install/de-install, etc.

There follows a second-level percolation at the item level preparatory to actually receiving items. Items undergo percolation to identify items cancelled, items to be refused, items with COD, items with express delivery, items for replacement orders, items marked back order, items in an auto-tracked sales order, items holding up installation, items holding up ship group, RMA items needing de-install, etc. Corrections may be made and reclassification performed until such point as the user is ready to receive. The user then starts the receiving process and, optionally, receiving status is posted via the Web or via email to selected customers and/or vendors.

Shipping percolation is in large part analogous to receiving percolation, previously described, and is illustrated in Figure 152.

Installation percolation is illustrated in Figure 153. Installation percolation may be single-level, identifying sales orders with a large quantity of installation, sales orders ready for software network integration, sales orders ready for assembling, sales orders missing one last item, sales orders with a defective component for RMA processing, sales orders with RMA waiting for vendor shipment, sales orders with RMA needing de-installation, sales orders with RMA needing re-installation, sales orders with RMA for warranty repair (off-site, on-site), sales orders with RMA for out of warranty repair, etc.

Supply Chain Integration/Management

The present software program provides for Web access by various business partners to all of the information relevant to the business. The software may therefore be described as Web-enabled Enterprise Resource Planning (WERP) software. The present WERP software allows for an unprecedented degree of supply chain integration/management. Referring to Figure 154, a left-hand side of the figure illustrates a sell/demand chain, and a right-hand side of the figure illustrates a supply/assembly chain. User demand information is gathered by a user following a URL link from a customer Web site. The link accesses the present WERP software. Using the software, the user creates a quote. Assuming the ordered item is not discontinued, the quote may be converted into an order. The item may be sold complete with no component assembly required, or may be sold with component assembly required. In the former instance, the order is posted to purchasing, and the item is ordered, e.g., by communicating order information to a vendor Web site *and* a manufacturer Web site. In the latter instance (component assembly is required), a component file is accessed to retrieve a unique set of components for a specific item SKU. Given the order quantity, a total component requirement is determined. Within PRIS, component grouping is performed, e.g, such that multiple "child" MWSs each contain (in bill-of-material fashion) all of the components required to assembly a single one of the ordered items, and a "parent" MWS of the children MWSs contains the corresponding number of complete items. The components are ordered by, as in the previous instance, communicating order information to a vendor Web site and a manufacturer Web site.

Note that, if an item is discontinued or not available (i.e., backordered), if the items component parts are still available, the item may still be sold, the component parts ordered and assembled, and the item shipped. Equivalent components may be substituted where necessary or convenient. Also, order information may be conveyed to a hierarchy of suppliers. In the case of a computer, for example, the vendor may be Ingram and the manufacturer may be Compaq. Compaq's suppliers may include makers of microprocessors, memories, disk drives, etc., whose suppliers may include in turn wafer manufacturers, platter companies, plastic companies, etc.

One key to the type of supply chain management described is breaking down items into multiple "tiers," each successive tier including component parts for items of a previous tier, and creating a record for each component part. Supplier relationships from one tier to the next may be identified based on information that is automatically updated on a frequent or substantially continuous basis. Percolation of the type previously described may then be performed on component parts, with classification being performed on the basis of availability within multiple tiers. Availability information within multiple tiers may be obtained via the Web. If customer specified installation and/or shipping instructions are likely to cause substantial delay in filling an order given availability information, the customer may be contacted to see if the customer desires to change instructions in order to minimize delay. In the case of channel assembly, when component parts are received, they are assembled into items for shipment to the customer.

There results a virtual inventory system with no backorders in which the order cycle time for the entire supply chain is compressed to that of a single order (single stage of a typical supply chain).

Web Universal Business Engagement Rules (WUBER)

Various customer-specific customizations of the behavior of the present WERP software have been described. Information representing desired customizations for a particular customer are stored in a customer file of that customer. During operation of the software, whenever customizable operations are performed, the software checks the customer file to determine how to proceed.

Such customization may be extended to embrace virtually all of the "business engagement rules," both general and industry-specific, commonly negotiated between business partners. Such business rules serve as an electronic template for specifying a customized business relationship. By providing Web access to a comprehensive ("universal") set of relevant business engagement rules, the creation and management of information-age business relationships is greatly simplified. The feature of providing Web access to a comprehensive set of relevant business engagement rules is referred to herein as WUBER ("Web Univeral Business Engagement Rules").

In a preferred embodiment, WUBER not only provides for the *specification* of business engagement rules, WUBER also provides for the *enforcement* of the business engagement rules during the course of business operations. For example, during the course of a business relationship, the customer may decide that all shipments are to be made via a specific carrier. Once that carrier has been specified for that customer within WUBER, the software will not permit shipments to be made via a different carrier.

The extent to which a customer may freely change that customer's business engagement rules may vary by customer. For some WUBER fields, all customer's may freely select any available menu choice. For other fields, bounds may be set within which the field may be changed. These bounds may vary from customer to customer. Hence, whereas an acceptable return period for one customer may be up to 90 days, an acceptable return period for another customer may be up to 180 days, for example.

New business engagement rules may be easily added to WUBER. Presently, as new business engagement rules are added, enforcement code must be manually written and added to the software program. In the future, such enforcement code may be automatically generated.

A specific example of a WUBER electronic template in table form is shown in Figure 155. Within the header row of the table are listed various customizable program tasks. Each column of the table lists various options pertaining to a particular task. Various fields of the template will be briefly described.

Various options in the Price Update column govern how products are priced and display for a particular customer. If an Activate flag is set, the options selected within the column will be enforced during operations of the software. If the Activate flag is not set, program defaults will be applied instead. Pricing may be fixed price or cost plus. The frequency with which prices are updated is selectable, e.g., daily, weekly, monthly. If a customer has obtained a quote but not yet placed an order, for example, the customer may want the quote price to not change (even if in the customer's favor) for a specified period of time. Furthermore, a price minimum update amount may be specified; for example, price changes less than a dollor (or, say, less than 1% of the previous price) might be ignored. Various other options relate to the manner in which products are displayed, for example all products, new products, discount products, products of a specific manufacturer, etc. A Personal Product List (PPL) is a user-specific list of frequently-purchased products. A Product ID (PID) is a collection of products (usually related) saved under a single identifier.

In the Quotes column, the customer may specify which system users may create quotes, which may save/retrieve quotes, which may modify quotes, and which may submit quotes. The customer may further specify various limits, e.g., a per-quote dollar limit, a per-day quantity limit, a limit on the number of quotes made per day, etc. Similar options are provided in relation to Orders and RMAs. Note, however, that an important option in relation to RMAs is automatic RMA approval.

In the Service & Repair column, various options may be specified, including service contract length and service response time, whether service to occur on-site or off-site, various service charges, etc. In the Shipping column, various delivery options are specified. In the Tracking column, various options are specified regarding how customer order information is to be tracked, e.g., whether tracking by serial number is desired, as well as various tracking thresholds by dollar amount, how recent the transaction is, quantity, etc.

In the Invoice column, various options relating to invoice delivery are presented. In addition, the customer may specify a billing frequency and whether credits are to be applied to invoices, whether replacement invoices are to be issued, etc. In the Credit Memo column, the customer may specify whether credit memos are to be issued to the customer (external) or whether an internal credit is to be issued, etc.

In the Payment column, various payment options are specified, including whether the ability to retrieve payment information is desired, credit card limits (credit card purchase dollar limit and frequency limit), check information, and EFT (Electronic Funds Transfer) limits.

In the Security column, various security options are specified, including for example, encryption, SET (Secure Electronic Transactions), security certificate, VPN (virtual private network), etc. Security may be handled by the customer on its own behalf or may be handled by the vendor. The present WERP software may in some instances be installed within the customer's firewall such that it becomes in essence part of the company.

The Access Group column is used to specify the access rights of different users. In the case of viewing quotes, for example, access may range from access only to one's own quotes (individual access), access to one's own quotes and those of user's whom one supervises (supervisory access), or universal access (in the case of a high-ranking executive, for example).

The Business Activities column is used by the customer to request that certain information about its business activities be tracked and made accessible. Such information may include, for example, the busiest order period (week, month) the slowest order period (week, month), etc.

The electronic template of Figure 155 is for the customer side of a business relationship. A corresponding template may also be provided for the vendor side of a business relationship. That is, from the point of view of a reseller, the template of Figure 155 expresses demands of the reseller's customers on the reseller. The template of Figure 156 expresses the demands of the reseller on the reseller's vendors.

A further example of WUBER is shown in Figure 160, showing a customer file screen display. Within the right-hand portion of the display, the customer is able to, via the Web, set customer-specific criteria for automatic RMA approval.

Virtual Intelligent Guide (VIG)

As should be apparent from the foregoing description, the present WERP software is designed to minimize the impact of personnel changes. To achieve this goal, the WERP software incorporates a Virtual Intelligent Guide (VIG). The VIG: 1) defines a task path for accomplishing each functional task by interacting with the system; and 2) captures and applies employee knowledge to refine each task path and disallow errors. The result is to enable relatively unskilled personnel to quickly become proficient at performing complex functional tasks in a simple manner using the software. An example of VIG was described previously in relation to accounts payable. The same model may be applied to accounts receivable, RMAs, sales, PRIS, etc.

Tracking Prospective Customers and Vendors

Customer and vendor files may be provided not only for existing customers and vendors but also for prospective customers and vendors. In the case of vendors, prospective vendor files provide a mechanism for capturing the knowledge of buyers in purchasing and of minimizing the impact of personnel changes. In the case of customers, prospective customer files facilitate sales force automation as will be presently described.

Sales Force Automation

During sales calls, a salesman will often be asked various question about particulars of various business transactions. If the salesman happens to know the answer, the salesman can answer immediately. More typically, the salesman doesn't know the answer and is forced to reply "I'll have to get back to you on that." "Getting back to you" will usually take days and may even take weeks, or may simply not happen at all. Current sales force automation software does little to address this situation.

The present WERP software provides the ultimate sales force automation tool. Instead of "I'll have to bet back to you on that," the salesman can instead say "Let's check on that." The salesman may then immediately use the Web to access the information needed to answer the customer's question. Web access may be through a desktop or laptop computer, either wired or unwired, or may be wireless through a handheld or palmtop computer. Alternatively, connection to the Web may be made prior to a sales call to download for a particular customer—all of the records, the most recent records, or some other subset of particular interest.

In addition to the foregoing functionality, various features of existing sales force automation tools may be added to the present WERP software, including such features as contact management (contact profile, contact history), account management (account information, outstanding and historical activities, order entry, order history, lead tracking, sales cycle analysis), sales force management (expense reporting, territory assignment, activity reporting, special events tracking), time management (calendar, single and multi-user scheduling, to-do lists, ticklers, notes, timestamps), telemarketing (call list assembly, call recording, call planning, call reporting), customer service (request assignment, tracking and reporting, order status and tracking), etc. All of these functions can be performed "on-the-fly," in real-time with up-to-the-minute information. This real-time operation is made possible because the underlying data is the same item sold/item detail data used throughout the system, simply viewed from an SFA perspective.

Figure 157 is a block diagram of a client/server business automation system in which a common database supports both end-to-end business process automation and sales force automation.

Referring to Figure 158, the sales force automation capabilities of the system of Figure 157 are represented in greater detail. A sales force automation module combines known sales force automation functions with additional functions made possible only by the end-to-end business process knowledge base stored in the single database described previously.

Known sales force automation functions include, for example, activity logging (actual time and data of daily activites by customer), intelligent notes (sortable and editable), and triggers (reminders) for follow-up calls, major opportunities, etc. The functions are supported by a summary display (drawn from the customer file) used to display contact information for customers by department and title. Various other functions may also be provided.

An expense reporting function is also provided. Unlike conventional sales force automation tools, however, expense information is combined with compensation information stored in the database in order to gain a complete picture of the profitability of a saleman. Based on profitability, a rewards structure may adjust the compensation of the salesman and provide performance feedback to the salesman through the sales force automation module.

Forecasting information may also be displayed to the salesman through the sales force automation module. Because the database stores complete historical transaction information, a sales forecast can be readily compiled based on the historical base. Other types of forecasts can also be compiled. For example, market projection information may be entered into the database (downloaded or entered manually), and based on this information, a forecast can be compiled. A forecast can also be compiled based not only on current customers but based on prospective customers. Such a forecast provides additional motivation for a salesman to convert prospective customers into actual customers.

Information from WUBER may also be displayed to the salesman through the sales force automation module. When a new salesman succeeds a departing salesman, the new salesman, by consulting WUBER, can readily learn the established business engagement rules for a particular customer.

Information from the human performance module may also be displayed to the salesman in the form of an activity summary display. In an exemplary embodiment, activities in various categories (columns) are quantified (rows) in dollars where applicable (for both sales and purchase orders), in quantity where applicable and in duration where applicable. For example, dollars sales, dollars purchase orders, and unit volume (quantity) are displayed for the previous year, the present year, and for the previous month, as well as for the peak month (max.) and the low month (min.). In other categories, e.g., ship-to-date and payment history, an average time in days is displayed, between the time an order is placed and shipped and the time an invoice is sent and paid, respectively.

An example of a screen display for Sales Force Automation is shown in

Purchase Requisition Budget Forecast

Orders, represented by MWSs, may be for resale or for internal use. A field within the MSW record distinguishes the type of MWS, including whether it is for internal use. Just as historical analysis and forecasting may be applied to customer sales, these same techniques may be applied to internal sales. The cycles of pinch/spend that often aflict corporate departments may therefore be avoided. Managerial personnel are able to determine easily in real time how much of a budgeted amount has been spent and how much remains to be spent.

Comparison With Known Workflow Systems

In contrast with known workflow systems, the present system, sometimes referred to hereinafter as the ICE™ (Internet Commerce Equalizer) system, represents a purpose-built application suite where all applications are both physically implemented and logically rational source or target applications in a Dynamic Workflow™ Environment

The ICE system may be described as a broad-spectrum suite of Internet-optimized business applications, that are designed and built to permit the implementation and execution of workflows without the mandatory parameter setting, software switch setting, customization and workflow preparation common to all other workflow environments. This is made possible by several, simultaneous development and runtime environment characteristics and by several carefully considered simultaneous application design and development practices.

To appreciate the difference between the ICE system and conventional workflow systems, the background of conventional workflow systems will be briefly described.

Arguably the origins of workflow are as ancient as the origins of industry. In modern industry, workflow has taken the form (under different names) of the assembly lines of Henry Ford, or as the doctrines of time and motion as formalized by industrial theorists like Taylor and Gilbraith.

Very recently, (the 1980s) workflow has appeared in computing and office automation in the form of task-based menus and wizards. Most recently, (the mid-1990s) workflows have taken the form of environments that tie ordinary business applications together into larger, structured super-applications that consist of applications tied together in a workflow definition environment driven by work-flow "engines."

These environments have the capability of performing state-transition or branching logic in contrast to the more mundane task-based menus. And unlike wizards which are normally used for intelligent installation procedures, workflows are usually used to support the structured execution of routine business applications.

Examples of such environments could include SAP's workflow operating in the Dr. Schier™ graphical workflow environment or Baan's Dynamic Enterprise Modeling running in the COSA™ environment. And, these environments have one common heritage with workflow of the past. Notwithstanding words like "dynamic" in their names, these environments are inherently static.

Static is used to mean that once a workflow has been built and implemented in any of these workflow environments, it stands as a defined super-application. To execute a workflow in any of today's existing workflow environments that has not been previously defined, prepared, and implemented is not possible. A user attempting to do so would find himself in the same position as a factory worker who attempted to execute an assembly procedure off the assembly line. He would find himself without resources or the means to execute any procedure for which a physical infrastructure had not yet been created.

The ICE system has a true dynamic workflow environment. This means that the users of the ICE system can go places with the application even when the metaphorical steel rails of an assembly line have not yet been built there.

In order for this to happen, the ICE environment must be fundamentally different from competing pre-defined, structured workflow environments. The basis of this dynamic flexibility and the goal of all recent design efforts is the enabling of all ICE applications as potential sources or targets in a workflow.

This potential must be inherent, and not the result of extensive preparation, switch setting, or parameter setting of older-generation applications. It does not even matter if this preparation is largely automated in a separate (static) definition and development environment, because such relative ease of building workflow scaffolding is qualitatively different than not requiring scaffolding for workflow mobility in the first place.

Real-world business users of older-generation enterprise applications have made comments like, "it's like taking off handcuffs," to navigate and solve business problems in the ICE system. Dynamic Workflow means that the user is not bound to one pre-defined way of doing a business procedure or of solving a problem.

Of course, the ICE system can enforce business procedures (in fact most routine business procedures in the ICE system are completely automated) and of course the ICE system is capable of enforcing GAAP and APICS standards in accounting and manufacturing. But wherever possible, the ICE system gives the user a choice even as it automates routine procedures. And when it comes to exception handling, the Dynamic Workflow environment in the ICE system saves significant time and effort.

In ordinary ERP and business systems, sequences of applications known as workflows are built up using specialized development environments. As with any other application, workflow or subsystem that is built up from either lines of code or from higher level components or applications, nothing exists that has not been previously defined and built.

In other words, to execute a particular workflow, someone must first implement it. The implementation system must follow strict rules and in many cases perform complex re-configurations of the workflow applications so that they are properly enabled as "source" or "target" applications. The workflow environment starts out either as a template of other pre-existing workflows, or simply as a blank slate on which to build the workflows that are to eventually be executed.

In the ICE system, by contrast, it is possible to navigate a comprehensive "web" of applications in any way needed by the user, with each and every application already a potential source or target application to every member of the navigation web.

A unique feature of the ICE system is its capability to support Dynamic Workflow. Dynamic Workflow may be described as follows:

- Conventional workflow starts with a blank slate and then builds up the workflow from individual applications or components. Even when workflow templates are used those templates simply specify which components are added by default to the blank slate.
- In conventional workflow systems, applications must be carefully conditioned, parameterized, and otherwise programmed to work together in a specific workflow, because they must often pass messages, passed parameters, or transactions between them. Those transactions must be data-type and business-rule-logic compatible.
- The applications that comprise a workflow will rarely work outside of the specific work flows they were designed for. This is because in conventional application systems the applications work more or less independently and are typically constructed around one or more specific (and independent) data files.
- This means that work flows must be constructed just like applications. Nothing is executable unless it has already been defined and implemented. The only difference is that applications are built up from routines and workflows are built up from applications. Workflows are simply hyper-applications that are built from components at a coarser level of granularity and a higher level of abstraction than the individual applications that make up the workflows.
- Even the most sophisticated and flexible of the existing workflow systems require active developer, designer, analyst and system-support intervention before the workflow can be implemented.
- Conventional workflow works as a "start with nothing and build" method. No application-to-application pathway exists unless and until

it is actively implemented.

The ICE system has a number of architectural characteristics that when combined, produce a unique Dynamic Workflow execution environment:

- It is a characteristic of the ICE architecture that all applications are object-based methods that interface with a unified, synchronous, "solid-state" database.
- These methods are written in such a way that most of them can be safely invoked in any order. Because these methods are actually only different logical views of the same "solid-state" database, any changes made by one method to the "solid-state" database, are simultaneously, instantaneously, and synchronously virtually "posted" to all other methods, in the ICE system.
- It should be noted that this posting is strictly virtual. No physical parameter passing is done and none is required, because there is only one database operating under strict rules of commit control. All database updates are accomplished synchronously, and under the protection of internal database commit control such that any data update is instantaneously and simultaneously propagated through any view that sees that data.
- In contrast to workflow systems where business objects are placed on a blank slate, and where no workflow exists that has not been previously defined, the ICE system is a web of business functions (methods). Potential connectivity and application-to-application workflow are universally present.
- This permits a "start with everything and set guidelines" workflow model.
- Normally, in the routine user interaction with the ICE system, routine, pre-defined business workflows are followed, and these are documented and programmed into the system as user guidelines, task-based menus, wizards, or procedures. Workflows may also be defined with state-transition intelligence, such that a particular data entry value will result in changing the next application along the application path.
- At end-user security levels, these procedures can be defined so that any change from a normal business procedure requires supervisor approval. User roles, rights and authorities can be comprehensively managed.
- However, if an exception condition arises, the user of the system has the option of invoking whatever necessary relevant application is required, with the assurance that data integrity, data consistency, and in

most cases, business rules will not be violated.

- Occasionally, management or supervisors will want to change business rules on purpose, and this can be done at a high enough level of supervisory system authority.
- Furthermore, all workflows in the system and the applications that comprise those workflows are structured in such a way that the workflows can readily be reversed at any time. An example would be when a sales situation turns into an RMA. In such a situation, the same workflow can be changed into a reverse workflow at any stage by simply reversing navigation.
- It should be noted, that whenever necessary, rational business rules can be overlaid on top of this "universal navigation Web" as would be the case if the invocation of a method results of posting the general ledger.
- In such a case, business rules dictate that the original posting general ledger must remain intact, and the corresponding opposite entry must be made. Even when such exception conditions are defined, universal navigation of the system is still possible if the user has a high enough level of authority.
- By creating a workflow environment where nearly any business method invocation sequence can be followed without violating system integrity, the ICE system has achieved a new level of system flexibility and the ability to respond to business contingencies.
- Even in the most flexible conventional workflow systems, situations arise where new methods need to be inserted into a workflow sequence, or other methods need to be removed, or an alternate method substituted for the original method. In a conventional workflow system, the new procedure must be defined, the applications properly prepared, through the setting of parameters and switches, and then the workflow must be tested.
- In such a situation, both application logic and database changes can have a negative "ripple effect" throughout the system often requiring extensive impact analyses.
- Obviously, this process is time-consuming, and is not practical for response in a contingency or exception situation. In the ICE system predefined workflows are set out as guidelines for normal business procedures such as order entry. At the same time, the user is able to override these guidelines whenever necessary. It means that the system can respond dynamically to changing business conditions.
- While it should be emphasized that the system does not create applica-

tion functionality or business methods were none existed previously, it should also be emphasized that the system is capable of dynamically adapting business workflows to ever-changing conditions. This allows the ICE system to respond dynamically to business impacts.

- Even where new methods are required to support previously undefined and non-implemented business method functions, the developer workload to create such new functions is greatly reduced in the ICE architecture because of its natural immunity to ripple effect. A new business method has zero impact on all existing business or future new business methods, and any additions to the database have zero impact on all existing or future new business methods..
- Even in the rare instance of a change to the database, automated data type declaration and synchronization in the ICE development environment allows the rapid, comprehensive and automated update of all the business methods in the system. This is an extremely powerful feature, and a necessary one because in order to be intrinsically workflow-enabled, all ICE applications must conform to the same data integrity and consistency rules.
- In practice much of the work of creating workflows in standard workflow environments consists of analyzing and controlling ripple effect, achieving project scope control, and conditioning the existing applications to work in the workflows that the designer wishes to implement. The ICE system eliminates these traditional bottlenecks to workflow development.

The foregoing discussion has focussed on the background, rationale and benefits of Dynamic Workflow. The following discussion will focus on keys to Dynamic Workflow in the ICE sytem.

- Eliminate the need to pass physical transactions or parameters between applications

An important purpose is served by eliminating the requirement to pass physical transactions or parameters between applications. Much of the conditioning and preparation of conventional workflow systems involves detailed data type checking and transaction matching from a source object to a target object. This is true whether the source object is a "pure" object or a hybrid object consisting of a more conventional database table and corresponding application.

If all the applications in an application system are actually methods that act on a unified "solid-state" database, and if all data type checking is done centrally, then one major source of potential application incompatibility is eliminated. This is exactly what is done in the ICE system. The ICE sytem is developed using a RAD environment (e.g., 4D from ACI, Inc.) that is capable of performing automated, centralized data type checking and declaration.

In fact, in the ICE system, data or parameters cannot be passed to any ICE application because once any data in the ICE system are updated, they are already in any and every method or view in the system. While this architecture could conceivably create currency problems and scalability limits in very large implementations, presently, no single ICE instance is designed to support more than a hundred or so users. Thus, ICE can operate on a "solid-state" instance of persistent data.

In this environment, data integrity rules are enforced by conventional RDBMS mechanisms. In fact, the ICE data model can be deployed as an Oracle database for example. Data consistency cannot be violated either because of all ICE applications share identical data consistency rules. Business rules are guided (not enforced) by a combination of application logic and workflow.

ICE can be and is coded to enforce certain business rules without exception. These would include things like double entry bookkeeping transactions. In all other cases however, the user with a high enough level of authority can invoke applications in what ever order suits the business case.

- ICE applications are coded to "open navigation Web" standards.

Every ICE application is written as if it could be invoked by any other application in the ICE system, and contains the navigation infrastructure and user enabling to support the invocation of any other application in the ICE system. With very rare exceptions, which are only made to conform to certain accounting or business restrictions, this is the actual case.

For the purpose of facilitating the execution of routine business processes, task-based, conventional workflow, and automated procedures or agents can be used. The big difference comes in when it becomes necessary to override an established procedure, or possibly even create, on-the-fly as it were, new procedures or exception-handling workflows.

One metaphor that describes the ICE system workflow in contrast to conventional workflow is that conventional workflow presents the implementation staff with a blank slate on which all workflow constructs must be implemented before they can be used. The ICE system presents the users with an open white board of potential navigation paths that are typically defined by navigation guidelines.

Regardless of which ICE application a user happens to be in, a direct navigation path exists to any other ICE application. When the user gets there, the user can almost always perform meaningful create, read, update, or delete operations on the data that they see through the new "window" that they have chosen.

Furthermore, each ICE application is written at a much broader level of granularity than the typical application in a conventional system. Each view in the ICE system encompasses what would normally be two or three levels of drill down in a conventional system.

Even the "fast path" user in a conventional system typically cannot make any changes to the data that they access through the manually invoked applications, without potentially violating one or more business rules. In any case, the user of a conventional system is looking at data that were designed to be stored either as unit records or as the rows of data in a relational database designed to be displayed on one 80 column by 24 line screen.

This is true even in systems that have been retrofitted with modern graphical user interfaces. In such systems, the graphical user interface is an aesthetically pleasing overlay on top of applications and data definitions that were designed to completely different standards.

The following table first lists in **bold** some of the primary architectural characteristics that distinguish the ICE system from conventional workflow systems. The rest of the table lists some of the consequences and spinoffs of this architecture.

Fundamental conventional workflow architectural charactistics are in bold	Fundamental ICE™ architectural characteristics are in bold	Fundamental benefits of ICE™ are in bold
Fixed, static binding navigation	**Open Navigation**	**Enjoy the flexibility of Internet browser-style navigation**
Individual applications primarily maintain individual tables, or as in the case of "unified database" products, separate data areas	**All applications are actually object-based methods that view the same synchronous database**	**No data type mismatches or errors are possible, messages, parameters and transactions are passed virtually, not physically eliminating transaction errors**
Multiple independent data tables typically supported by multiple relational database instances	**One logically "solid-state," synchronous database**	**One update by one user using one business method simultaneously and instantaneously "posts" that update across all users and all business methods**
E-commerce and Internet enabling typically a retrofit or add-on	**E-commerce and Internet architecture is intrinsic to the ICE™ (Internet Commerce Enabler) architecture**	**Both user navigation and inter-system communication are fully Internet enabled**
Applications must be retrofitted and customized to work in the workflow environment because they were originally written to be either stand-alone or conventional task-based menu driven applications	**ICE™ applications (business methods) are designed, architected and written specifically for the workflow environment. Every business method is a potential source and/or target method to every other method.**	**All business processes are reversible, flexible and extensible. The user has the functional equivalent of a browser "back button," as well as a routine workflow "forward button." The potential navigation web is a 3-dimensional geodesic of business methods**
Applications tend to be fragmentary. In order to see all relevant data, several layers of drill down are provided	**Applications are written at a much broader level of granularity. Although underlying synchronous data is stored internally as 3NF relational data (no repeating groups, elements or foreign key dependencies), users can see (and manipulate) at least 2 and usually more "drill-down" levels at once.**	**Applications have a central function with multiple overlapping functions or data display. It becomes immediately apparent to a user where they might need to move to place the data they want to primarily manipulate in the center of their chosen "data window." Furthermore, that movement is always possible.**
Secondary characteristics follow:	Features:	Benefits:
Start with nothing and then implement business functions as necessary	Start with open "go anywhere" navigation and define business process guidelines as necessary	Users spend time on business process definitions, not on implementation mechanics

Business process and best business practice templates contain applications lists, state transition rules and extensive application configuration switch, parameter, and data compatibility information	Business process and best business practice templates contain business method navigation guidelines and state transition rules only	Much less chance for errors. . Much greater flexibility of navigation and execution if the user needs to go beyond the boundaries of the predefined workflow
Just because an application works in workflow "A" does not necessarily mean it will work in workflow "B"	All applications are actually logical methods that view the same synchronous database and are compatible	Data cannot get out of synchronization. The results of business actions can be seen right away.
Applications must "know" they are part of a workflow and won't work unless properly prepared	Applications don't "know" or "care" if they are part of a workflow or not	Skipping a step, navigating to an alternate step or viewing results won't corrupt the workflow
Workflows are logical and physical super-applications made up of a number of sub-applications	Workflows can act as if they were super-applications but workflow architecture is logical only	Ripple effect is eliminated, implementation time is greatly reduced, users can concentrate on business solutions, not implementation mechanics
Adding or removing an application from a workflow has a significant impact on the workflow and on the applications the workflow contains	Adding or removing an application changes the logical outcome of a workflow but has no effect on the other applications in that workflow	
Implementing a workflow requires development and testing	Implementing a workflow requires a rational business proposition	
Exception handling workflows must be anticipated or their need encountered and then they must be developed before they can be implemented	Exception handling conditions can occur, require the ad hoc execution of a previously unexecuted workflow and optionally be formally defined	
Conventional ERP and other business applications must support physical message and parameter passing	ICE™ applications are methods that view the same, synchronous database. Physical transactions and parameters are not passed.	Several potential sources of error are eliminated, particularly data type and transaction format mis-matches
Most conventional workflow implementation errors occur because of application configuration and transaction data errors	ICE™ applications cannot be further configured for workflow because they are already designed and implemented for workflow; transaction data errors are impossible because all applications are already viewing the same synchronous data	Far greater flexibility of navigation, fewer errors, faster response times
A workflow may be reversed (e.g., change an order into a return) by completing the order workflow and then invoking a return workflow	A workflow may be reversed at any time by choosing a reverse navigation path.	A business process may be reversed without needing to complete the first process and then to complete a counterbalancing process

A management override of normal workflow procedures that has not been thoroughly tested risks violating business, data consistency and in some cases, even data integrity rules	A management override of normal workflow procedures involves invoking alternate business methods which all obey the same data consistency and integrity rules. Even apparent violations of business rules (e.g., create a fictitious pro forma order with no customer and missing suppliers) will not corrupt data integrity or consistency.	It is possible to perform unforeseen tasks or to prepare non-conforming (to any existing workflow) quotations, pro formas or bids. Entire transaction sets may be duplicated or re-routed to additional customers in a zero programming, zero workflow engineering environment
Accounting rules (e.g. GAAP required double-entry bookkeeping and transaction preservation) must be externally enforced through workflow, business and data consistency rules	Accounting rules (e.g. GAAP required double-entry bookkeeping and transaction preservation) are enforced by workflow and business method rules at point of entry	
Even in so-called "dynamic" workflow modeling systems, the actual workflows are statically bound to the operating environment	In ICE™, all business methods are, in the object-based sense, dynamically bound to the operating environment	All ICE™ workflows potentially exist as un-executed but possible entities
By the time an exception solution is implemented in a conventional workflow environment, conditions causing it have already have changed (e.g., the customer may not be a customer anymore!)	Any workflow is already potentially implemented in ICE™. When an exception arises, it can be dynamically responded to.	Instant response to exception conditions
Conventional workflow applications are ordinary task-based menu style programs adapted to an externally imposed workflow framework	ICE™ applications are actually logical views and methods that are initially architected and purpose-built to operate in a dynamic workflow environment	No further setup or conditioning of applications is necessary in order to perform workflow functionality
A major source of error in conventional workflow systems is data type mismatches	All ICE™ methods are logical views of the same physical and logical database—data type check errors are literally impossible	All data in all applications for all users is always current. Data integrity and consistency are enforced in one place
Data types (e.g., packed, numeric, zoned, alpha, bitmap) must be declared by a developer	Data types are automatically synchronized and reconciled in the ICE™ development environment—any and all type declarations when necessary are strictly automated	
Conventional development environments have separate tools to enumerate change or enhancement impact. Adding an application can impact much of the existing system.	The ICE™ development environment automates data type reconciliation and optionally can report the changes an enhancement may have caused. All applications use the same data consistency rules	

Conventional ERP system architecture must be capable of supporting Fortune 100 enterprises. Smaller implementations must carry the design overhead of these architectures	ICE™ is designed and optimized for business instances requiring less then 125 GB of live transactional data and is able to radically reduce complexity and overhead (this does not rule out supporting multiple ICE™ instances in a single enterprise)	ICE™ is optimized for your business, not for a multi-billion dollar multinational. You don't pay for all that overhead either in license and consulting fees or in performance
Any business method in a conventional workflow environment is a physical application that must be selected and adapted as a source and/or target application in the workflow	Any business method in ICE™ is potentially either a source or target method to all other methods in a read mode, and is a logical source or target to most other methods in a create, update or delete mode	
Workflows are strictly uni-directional except for branches and loops. Even so, the workflow must end at a predetermined ending point.	Workflows are all potentially bi-directional. For example, an order entry workflow may turn into an RMA (return material authorization) at any point simply by taking the reverse navigation path.	

It will be appreciated by those of ordinary skill in the art that the invention can be embodied in other specific forms without departing from the spirit or essential character thereof. The presently disclosed embodiments are therefore considered in all respects to be illustrative and not restrictive. The scope of the invention is indicated by the appended claims rather than the foregoing description, and all changes which come within the meaning and range of equivalents thereof are intended to be embraced therein.

APPENDIX A: NIGHTLY UPDATE REPORT

Subject: MegaNetworkNightly report (12/18/98 10:45 PM)
Sent: 12/19 6:39 AM
Received: 12/18 10:44 PM
From: MegaNightly@meganetwork.com
To: charles@meganetwork.com
john@meganetwork.com
kenny@meganetwork.com
kim@meganetwork.com
wendy@meganetwork.com
won@meganetwork.com

_____ No reminders today _____

------------------- Nightly Update Reports Follow -----------

All MWS numbers are in sequence.

No MWS cancellation problems were found

The following sales records had ord/rcv/shp date problems which were repaired succesfully. No other date problems found.

M98-28538 11/5/98

No MWSs with unit X qty price/cost problems were found.

The following sales records have items that are received and not shipped.

M98-28619	12/7/98	NoPartial	UNION BANK OF CALIFORNIA
M98-28632	12/9/98	NoPartial	UNION BANK OF CALIFORNIA
M98-28633	12/9/98	NoPartial	UNION BANK OF CALIFORNIA
M98-28639	12/11/98	NoPartial	UNION BANK OF CALIFORNIA

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M98-28640  12/11/98  NoPartial  UNION BANK OF CALIFORNIA
M98-28657  12/17/98  NoPartial  UNION BANK OF CALIFORNIA
M98-28658  12/17/98  NoPartial  UNION BANK OF CALIFORNIA
M98-28659  12/17/98  NoPartial  UNION BANK OF CALIFORNIA
M98-28660  12/17/98  NoPartial  UNION BANK OF CALIFORNIA
M98-28662  12/17/98  NoPartial  UNION BANK OF CALIFORNIA


The following shipping records shipped in the last 7 days have defualt
manifest frt totals.

11/23/98   UPS   Pickup#: 99076868
11/24/98   CALL TAG   Pickup#: 502960111
12/1/98   CALL TAG   Pickup#: 504632811
12/4/98   0306-243219-   Pickup#:
12/11/98   UPS   Pickup#: 200 monitor
12/14/98   UPS   Pickup#: 990768
12/14/98   UPS   Pickup#: 990768
12/14/98   SECURITYEXP   Pickup#: F71649
12/14/98   SECURITYEXP   Pickup#: F71650
12/15/98   SECURITYEXP   Pickup#: F71651
12/15/98   SECURITYEXP   Pickup#: F71652
12/15/98   UPS   Pickup#: 990768
12/16/98   SECURITYEXP   Pickup#: F71653
12/16/98   SECURITYEXP   Pickup#: F71654
12/16/98   UPS   Pickup#: 990768
12/17/98   UPS   Pickup#: 990768
12/18/98   UPS   Pickup#: 990768


The following RMAs have date or qty problems and were NOT fixed.

R-272186CR    7/24/97
R-274615XDM    8/12/97
R-292761CR    12/22/97


No RMA credit problems were fuond.

The following RMAs have been received from customers in the last 30 days
and need credit memos.

R-321917CR   Invoice: 12/1/98
```

R-322083CR Invoice: 12/15/98
R-322118CR Invoice: 12/16/98
R-322267CR Invoice: 12/15/98

No RMAs have been received from customers in the last 30 days that need replacement MWS attention.

All customer invoices that have been printed have been issued.

The following customer invoices are issued and not printed.
*=Old

*17803	Customer	UNION BANK OF CALIFORNIA	12/8/98	Paid in full
*17827	Addendum	UNION BANK OF CALIFORNIA	12/14/98	Paid in full
*17828	Addendum	UNION BANK OF CALIFORNIA	12/14/98	Paid in full
*17829	Addendum	UNION BANK OF CALIFORNIA	12/14/98	Paid in full
*17845	Customer	SOUTHERN CALIFORNIA EDISON	12/16/98	
*17857	Customer	SOUTHERN CALIFORNIA EDISON	12/18/98	
17858	Customer	UNION BANK OF CALIFORNIA	12/18/98	
17859	Customer	UNION BANK OF CALIFORNIA	12/18/98	
17860	Customer	UNION BANK OF CALIFORNIA	12/18/98	
17861	Customer	UNION BANK OF CALIFORNIA	12/18/98	
17862	Customer	SOUTHERN CALIFORNIA EDISON	12/18/98	

All items shipped in the last 30 days have been invoiced.

The following customer invoices were found to have commission problems:

M97-25714 10/15/97 for Charles commission & invoice GMs are different.

17843 M98-28645 12/16/98 for VERNON commission & invoice GMs are different.
17843 M98-28645 12/16/98 for KIM SEALE commission & invoice GMs are different.

Commission dates were all found to be valid.

All customer invoices issued in the last 90 days have 2 commissions.

No duplicate vendor invoices were encountered.

All vendor invoice billed amounts equal payment register totals.

All items received in the last 30 days have been fully shipped.

The following MWSs have in house items that need to be ordered and/or received.

M98-28657	12/17/98
M98-28658	12/17/98
M98-28659	12/17/98
M98-28660	12/17/98
M98-28662	12/17/98
M98-28663	12/18/98

All items on hold or cancelled are not on a payment register.

All Vendor Payment Register payment amounts match Ven Invoice payments.

All Vendor Payment Register credit amounts match Ven Collection amounts.

All Vendor Payment Register Credits have been issued properly.

No PrePaid Vendor Invoices were found on Non PrePay Vendor Payment Registers.

The following vendor credits have possible duplicate expected credits.

Exp-4478	00/00/00	Invoice:
Exp-5185	00/00/00	Invoice: 50-10686-21

All expected credits have an invoice assigned.

All Vendor Invoices have payment schedules that match the Invoice total.

All Ven Invoices are assigned to an AP Invoice Register.

All Ven Collection records are assigned to an AP register.

All Paid Ven Invoices are assigned to an AP Payment register.

All used Vendor Credits are assigned to an AP Payment register

The following MWSs have shipped in the last 30 days but are NOT fully or over invoiced, or not printed.
*= New

*M98-28573	Customer	SOUTHERN CALIFORNIA EDISON	Unprinted invoices
*M98-28647	Customer	SOUTHERN CALIFORNIA EDISON	Unprinted invoices
*M98-28649	Customer	UNION BANK OF CALIFORNIA	Unprinted invoices
*M98-28651	Customer	UNION BANK OF CALIFORNIA	Unprinted invoices
*M98-28652	Customer	UNION BANK OF CALIFORNIA	Unprinted invoices
*M98-28653	Customer	UNION BANK OF CALIFORNIA	Unprinted invoices

No customer invoice tax problems were found.

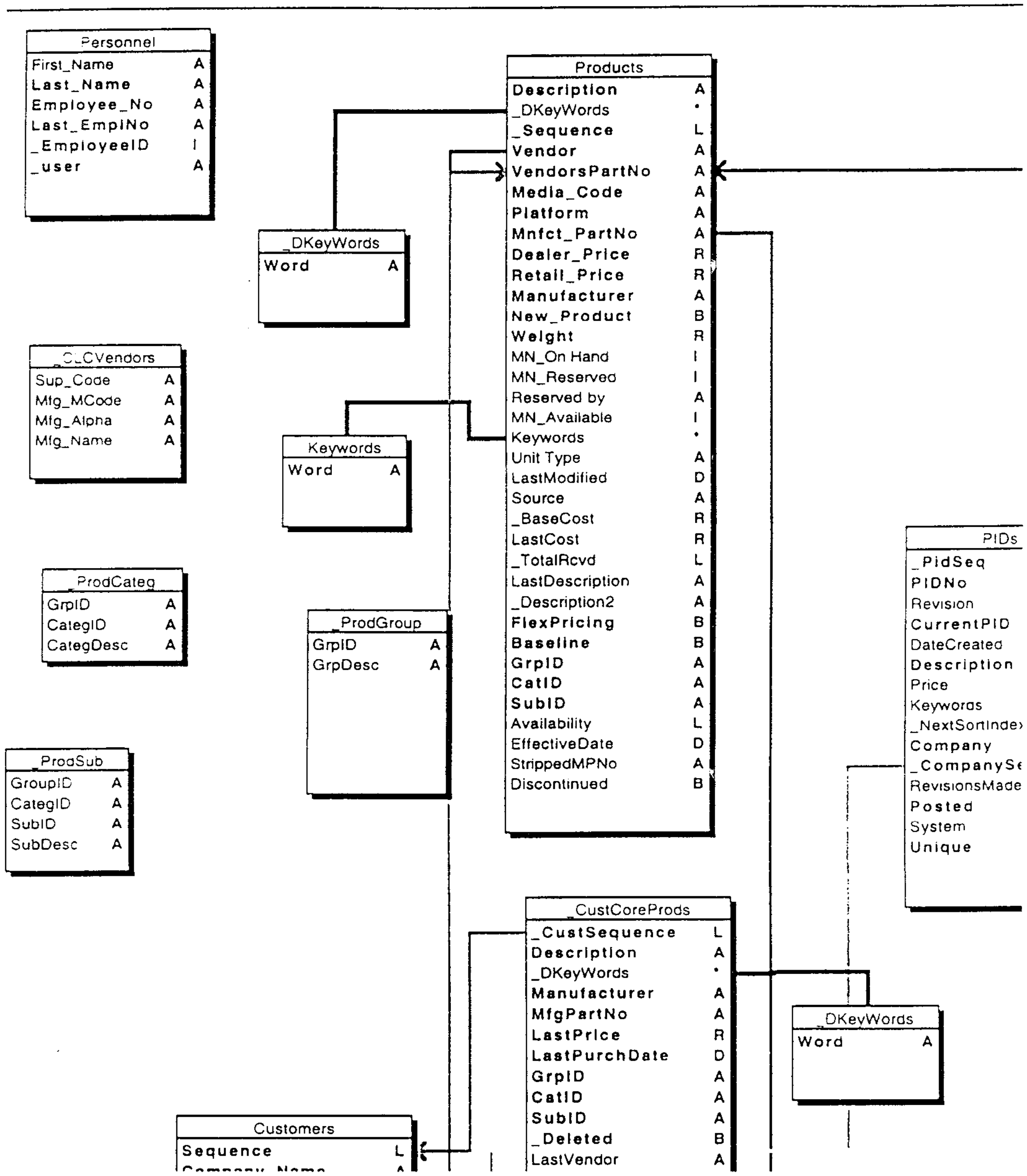
All unissued customer invoices were successfully issued.

The following Customer Credits have no tax and are taxable.

CM-10432-2-10 5/15/97 Restock

Won Choi
Mega Network, Inc.
Phone:(408)730-9138 x839
Fax:(408)720-1293
won@meganetwork.com

Structure for Mega3.5.4



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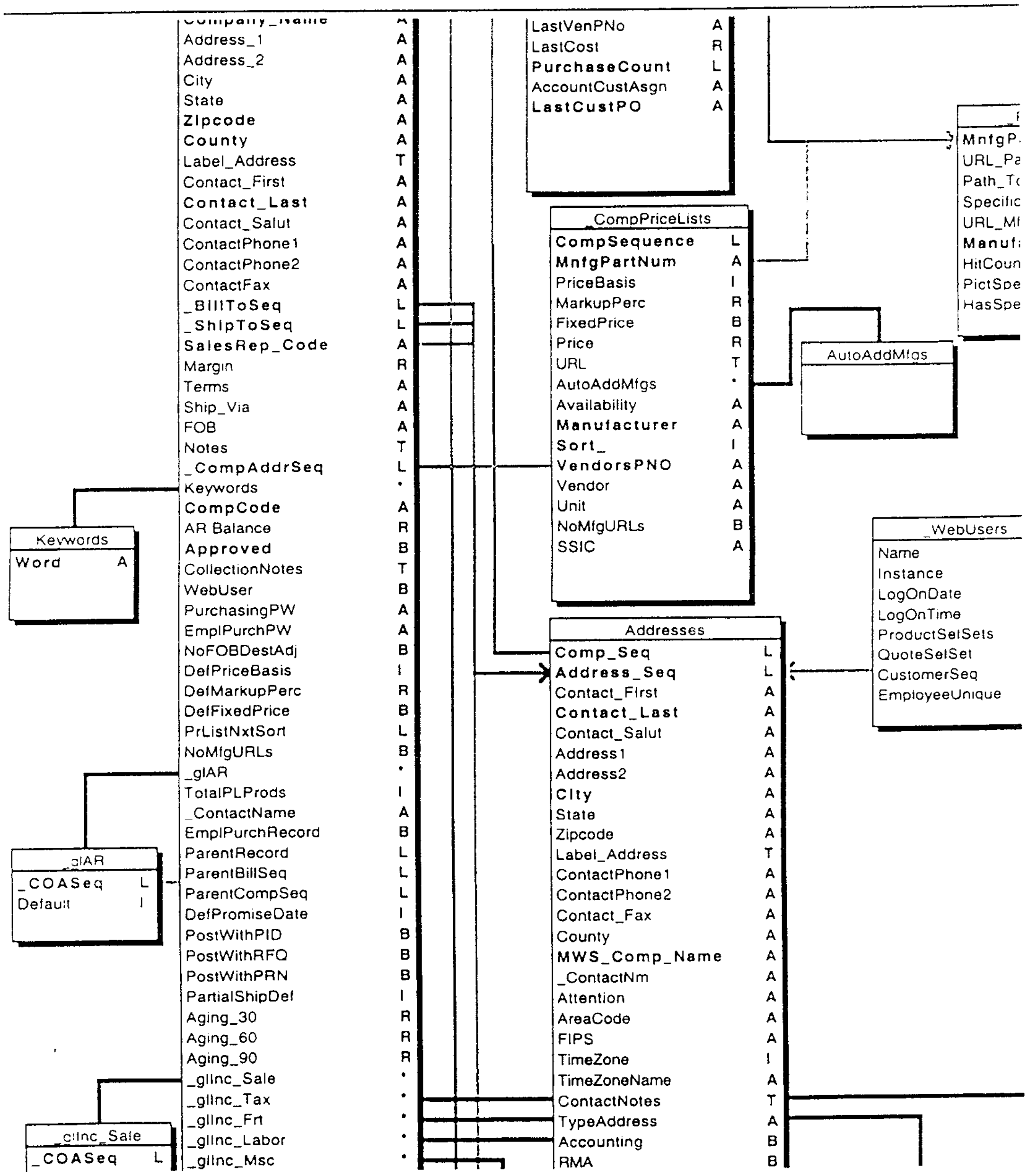

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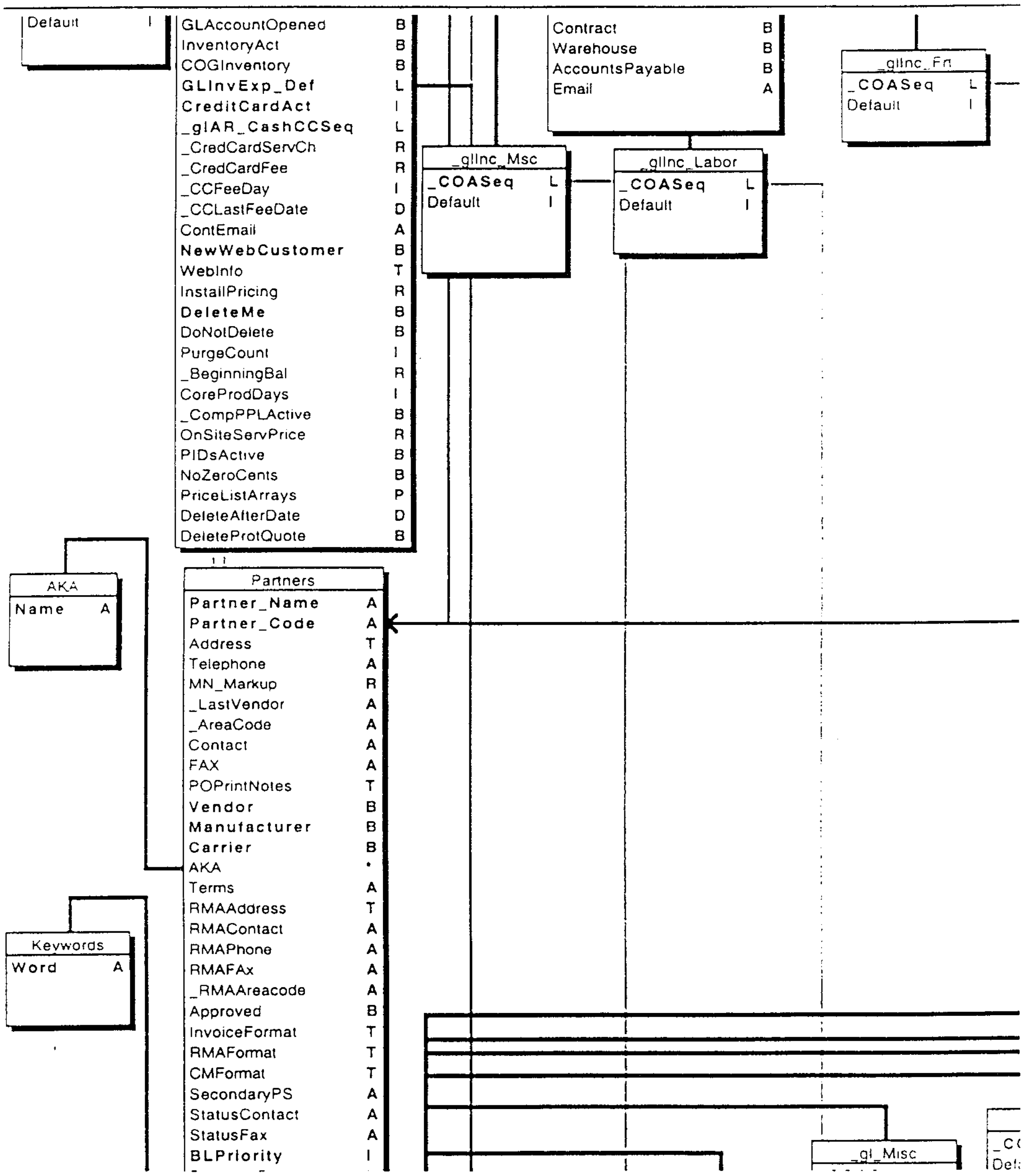

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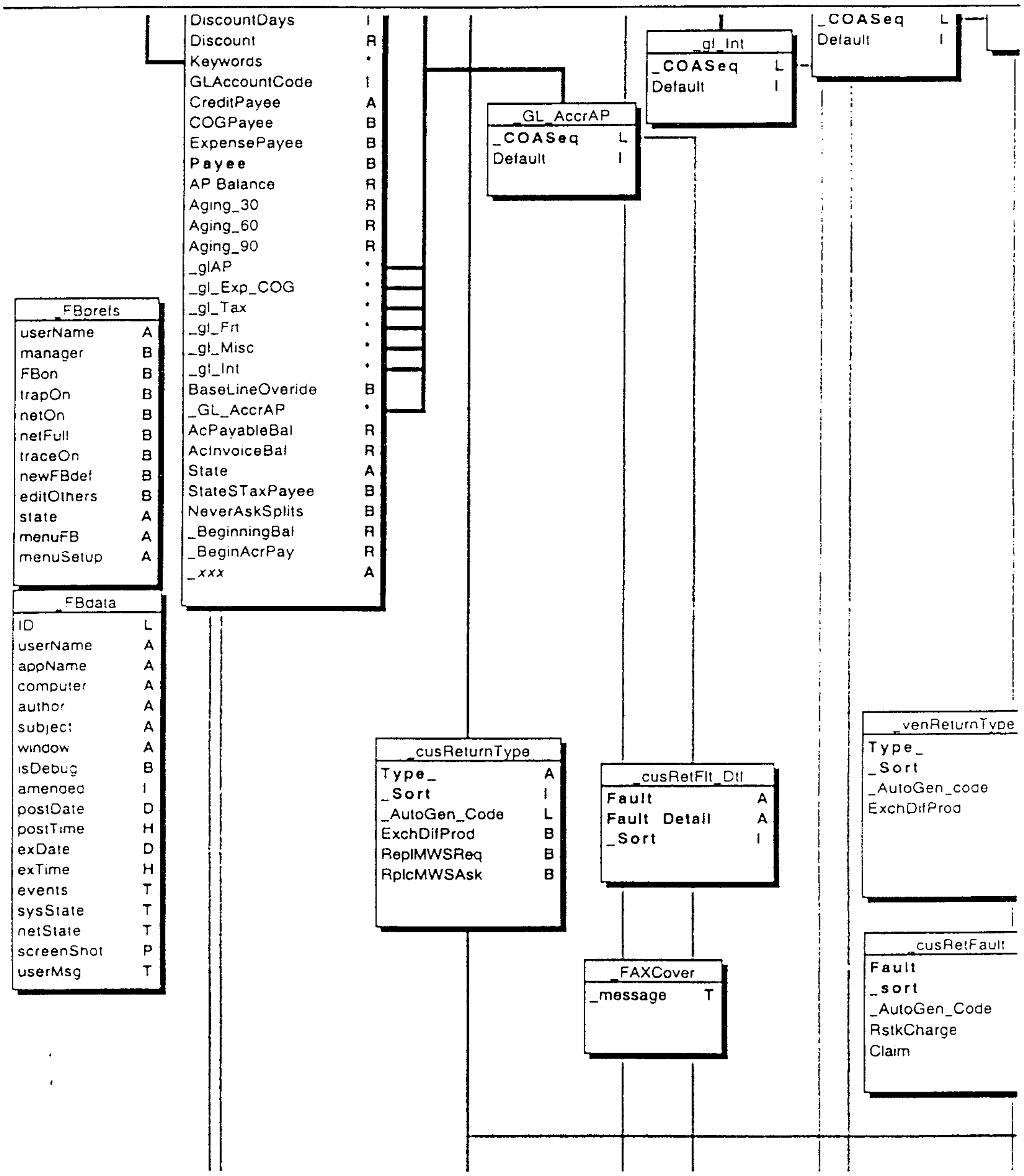

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Keywords •
GLAccountCode I
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COGPayee B
ExpensePayee B
Payee B
AP Balance R
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Aging_60 R
Aging_90 R
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_gl_Tax •
_gl_Frt •
_gl_Misc •
_gl_Int •
BaseLineOveride B
_GL_AccrAP •
AcPayableBal R
AcInvoiceBal R
State A
StateSTaxPayee B
NeverAskSplits B
_BeginningBal R
_BeginAcrPay R
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Default I

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manager B
FBon B
trapOn B
netOn B
netFull B
traceOn B
newFBdef B
editOthers B
state A
menuFB A
menuSetup A

_FBdata
ID L
userName A
appName A
computer A
author A
subject A
window A
isDebug B
amended I
postDate D
postTime H
exDate D
exTime H
events T
sysState T
netState T
screenShot P
userMsg T

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_Sort I
_AutoGen_Code L
ExchDifProd B
ReplMWSReq B
RplcMWSAsk B

_cusRetFlt_Dtl
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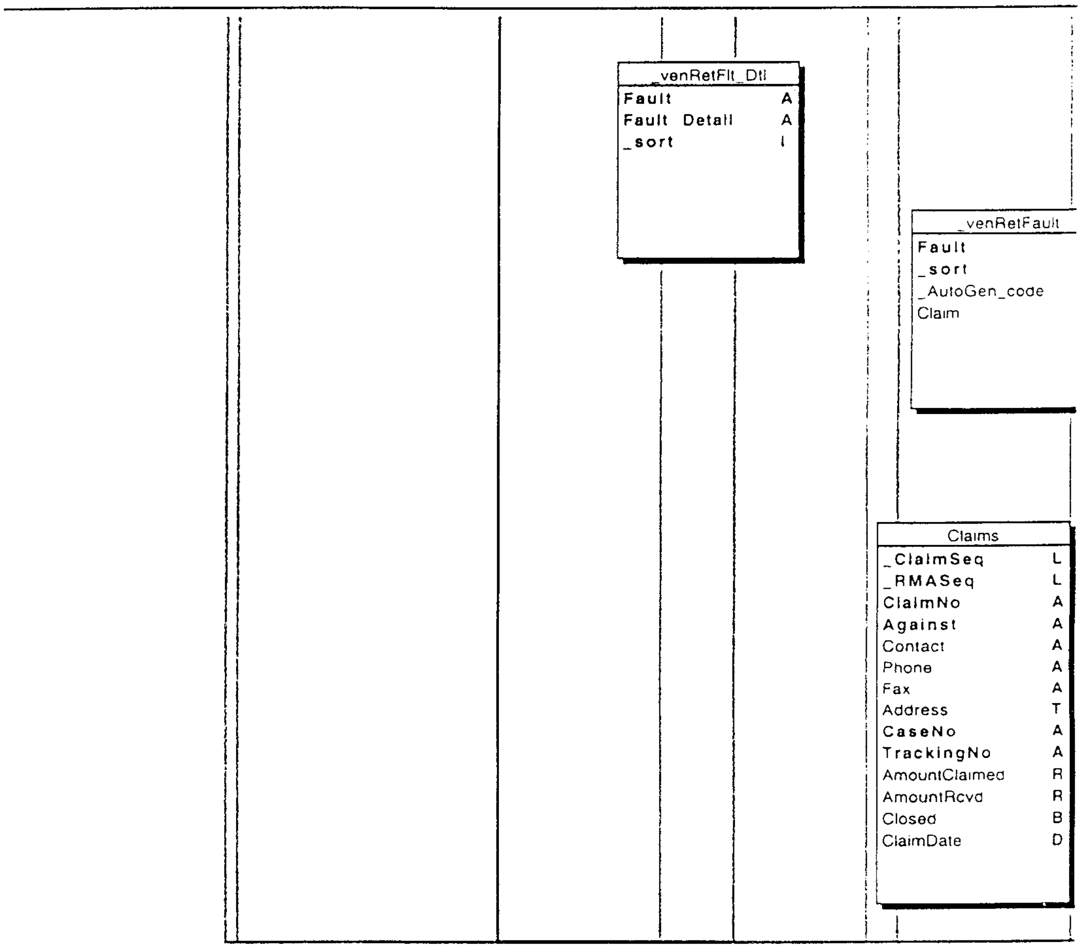

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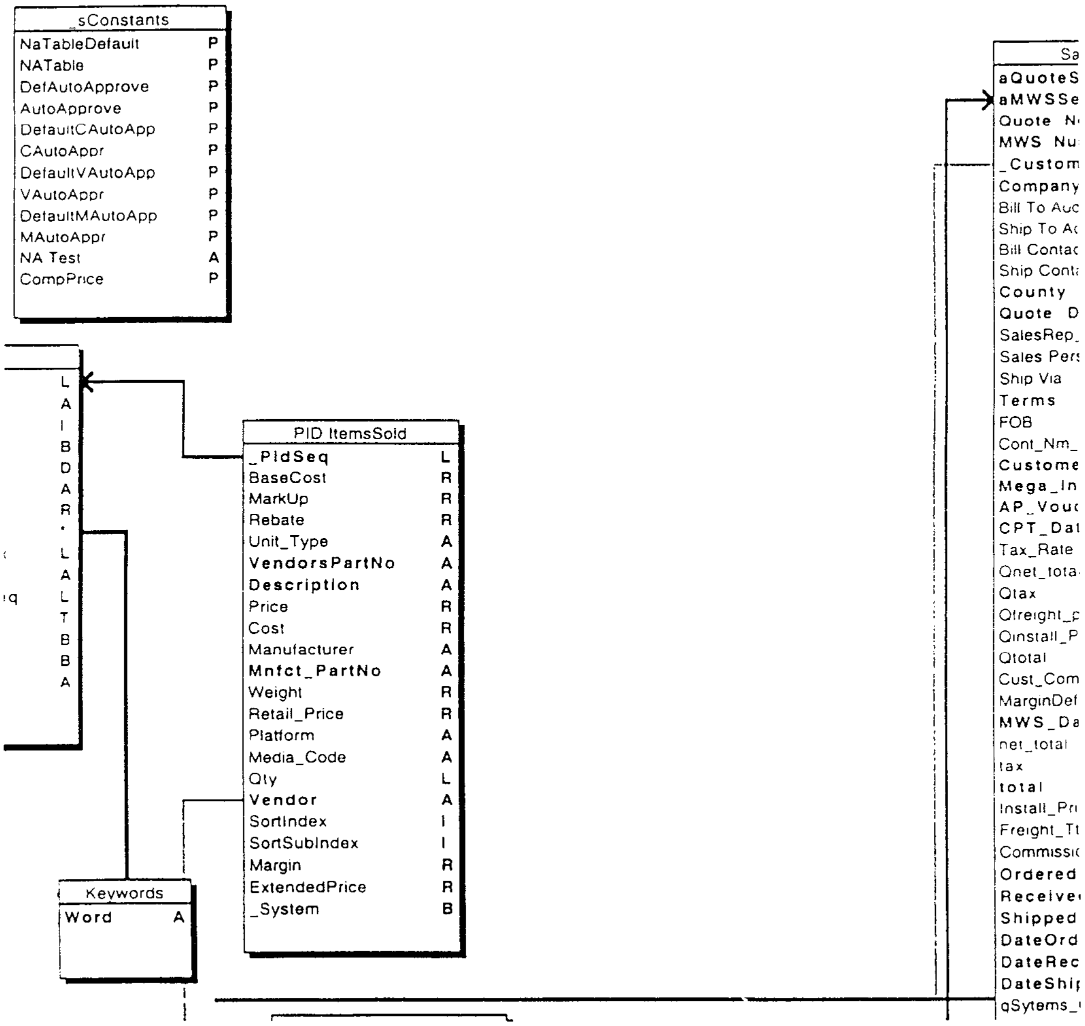

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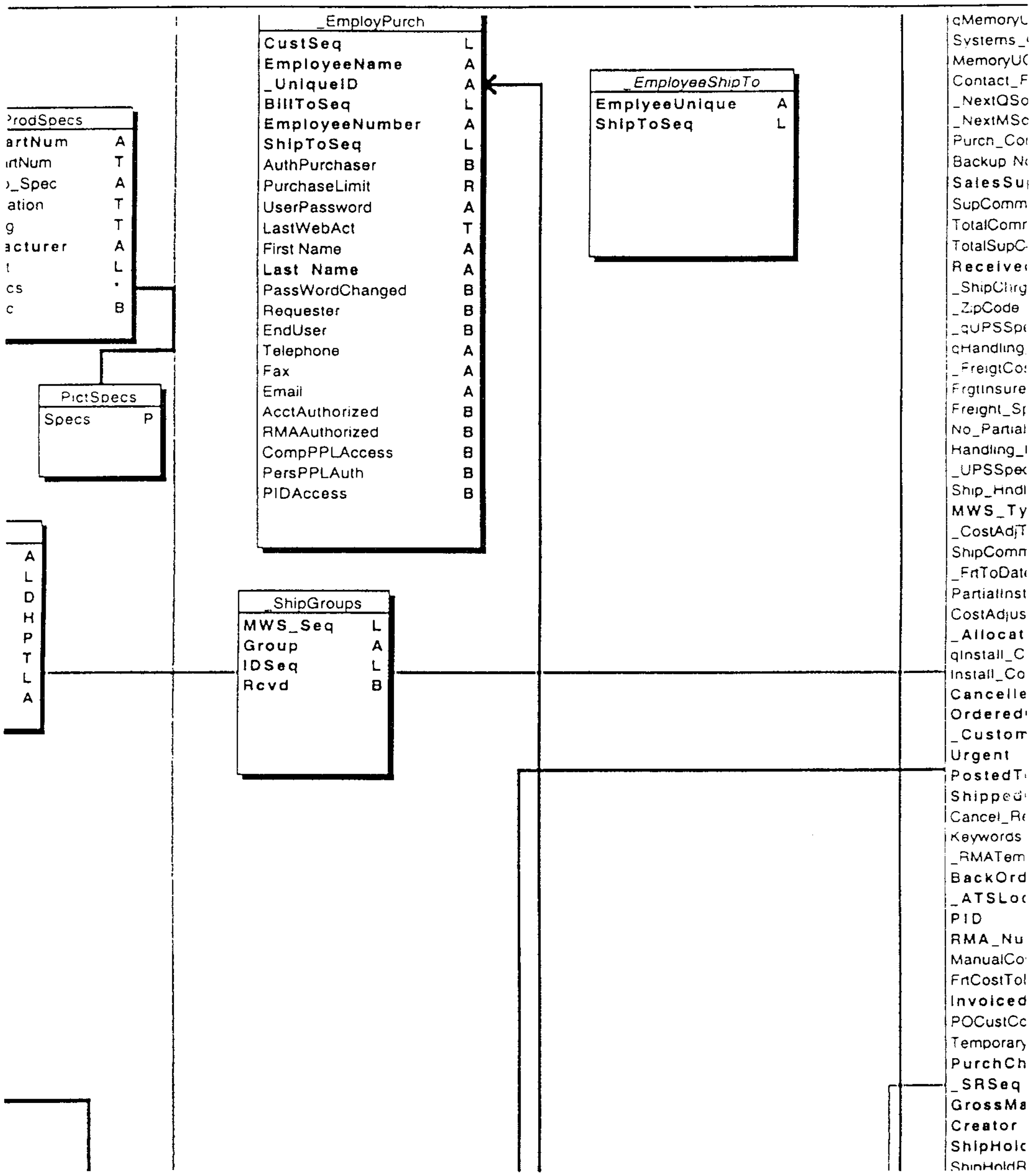

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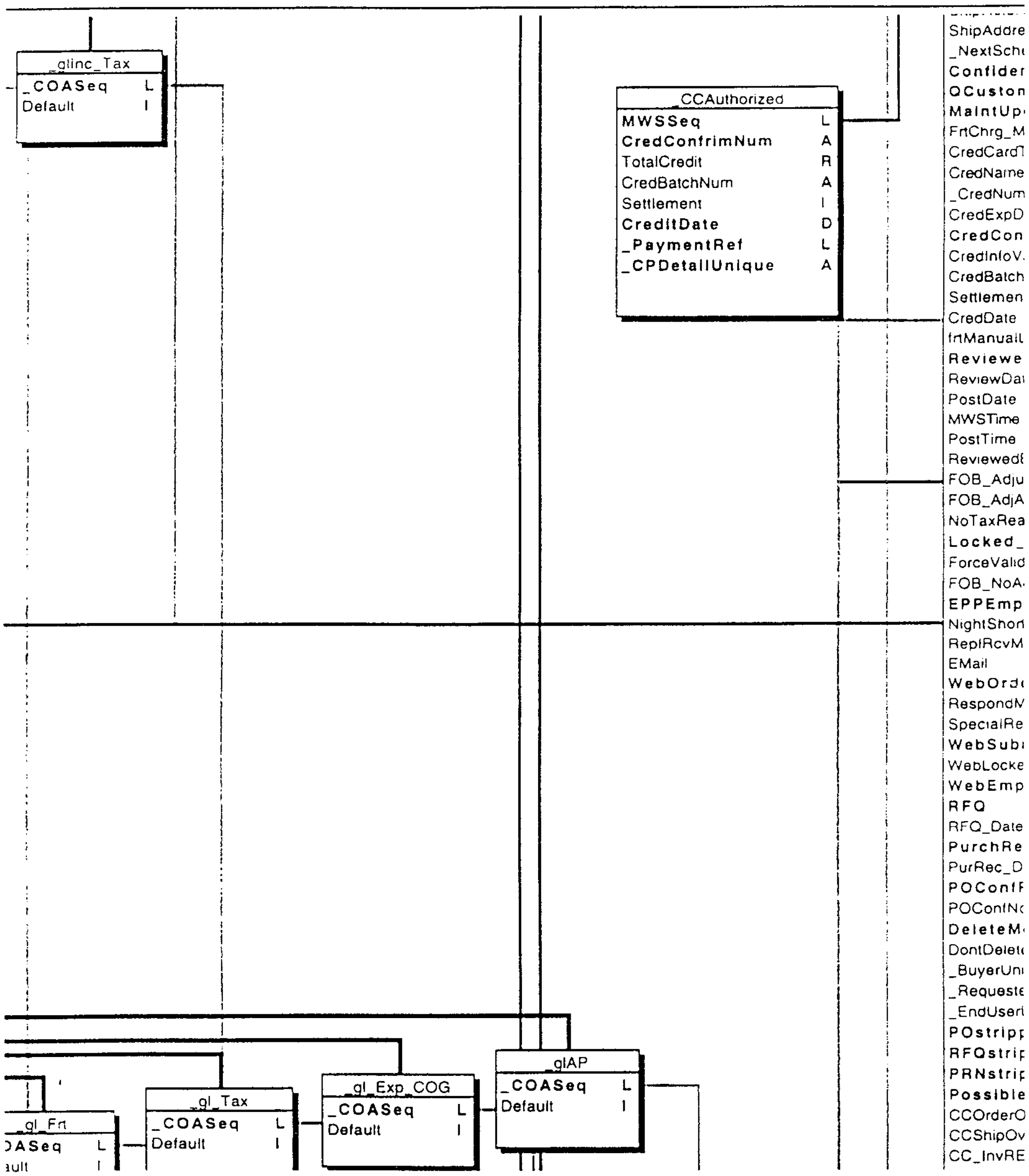

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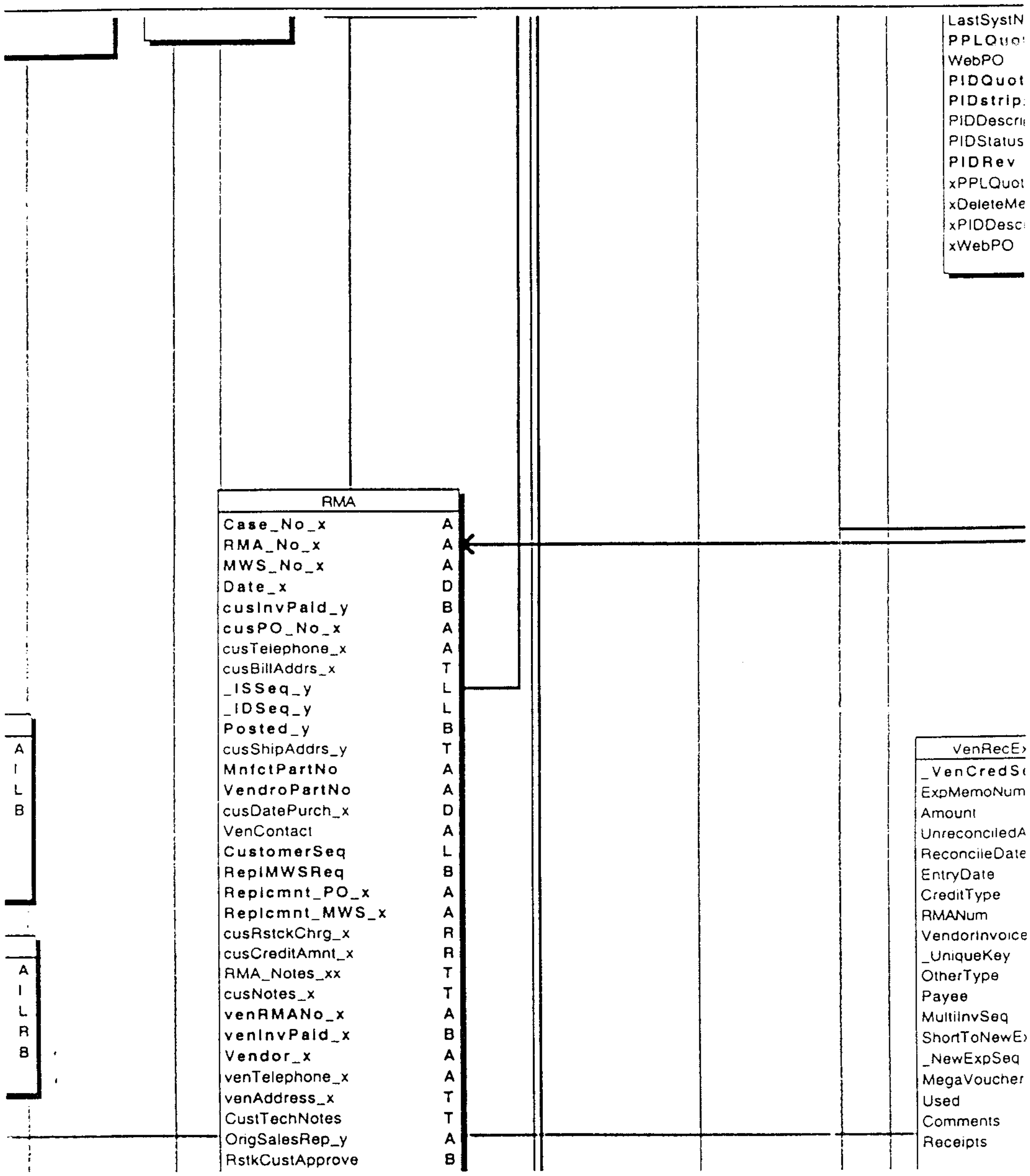

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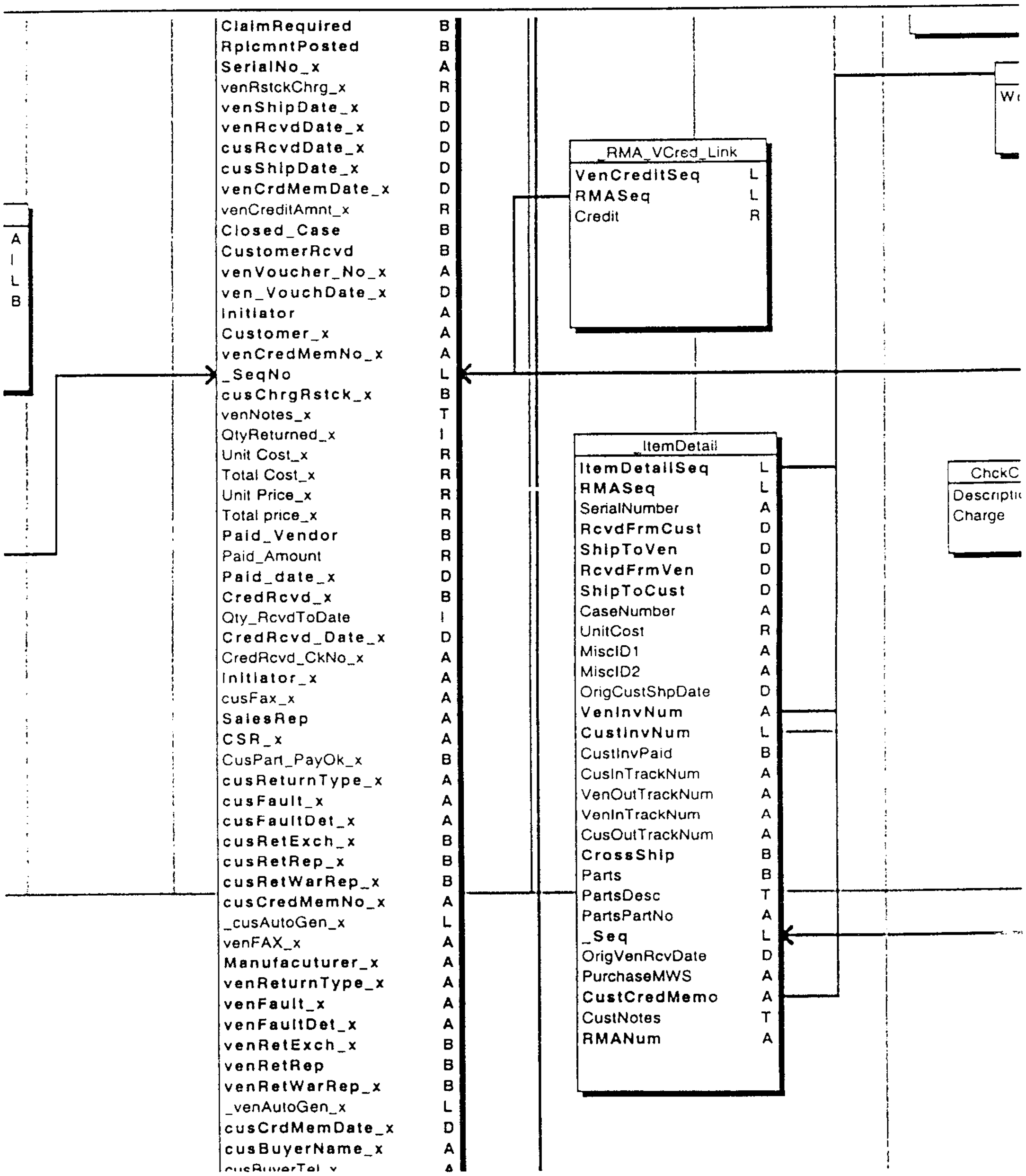

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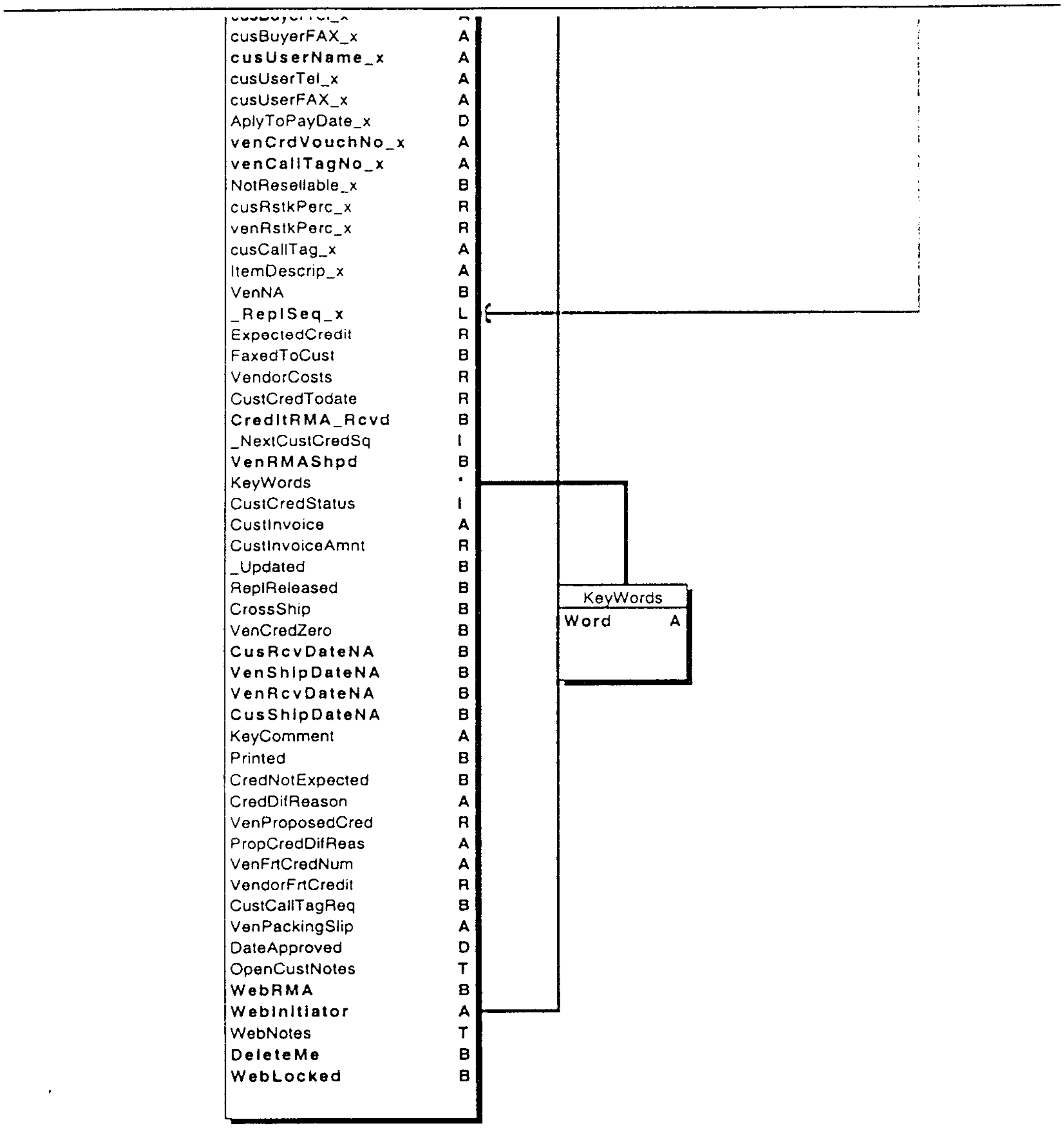

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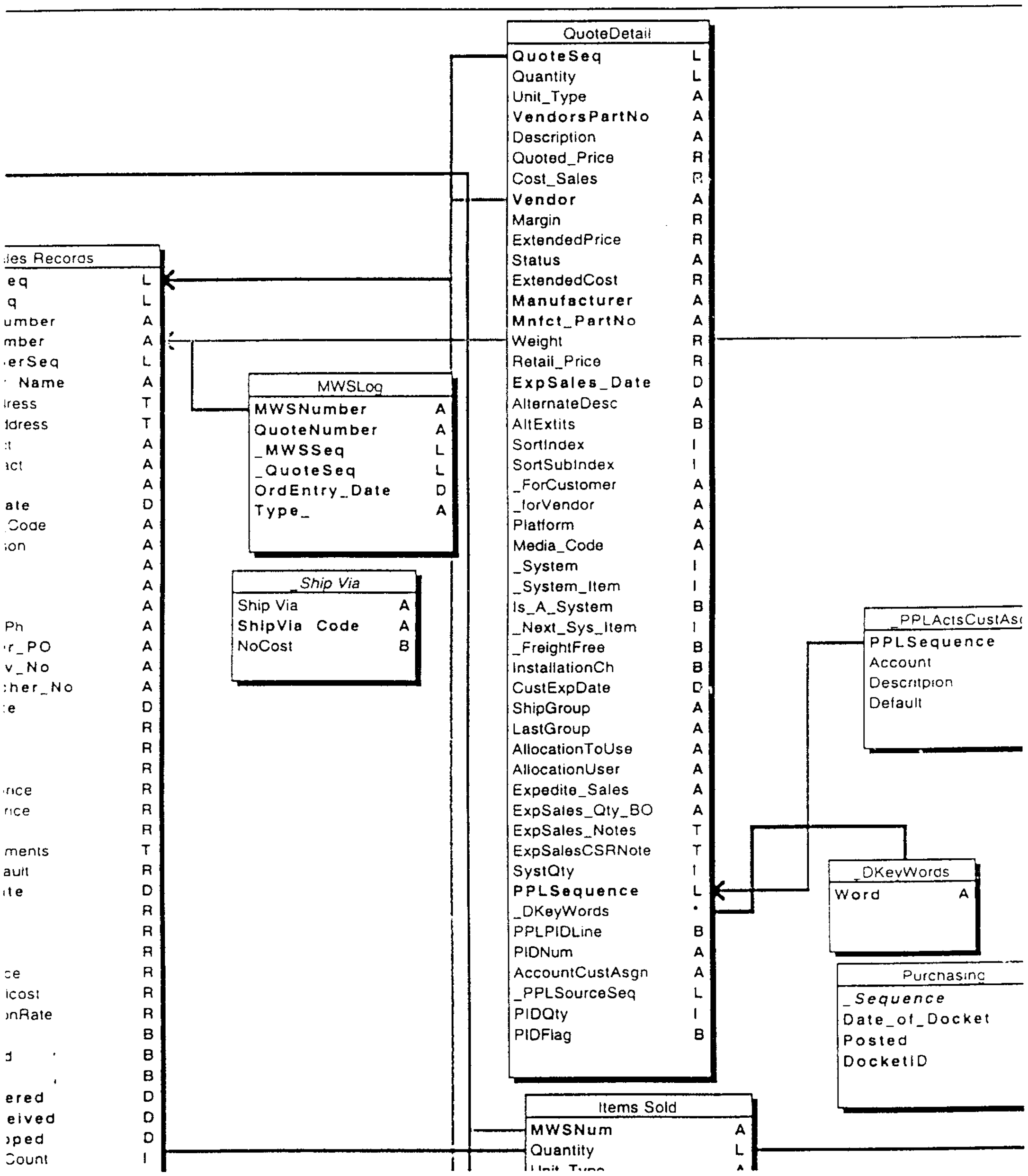

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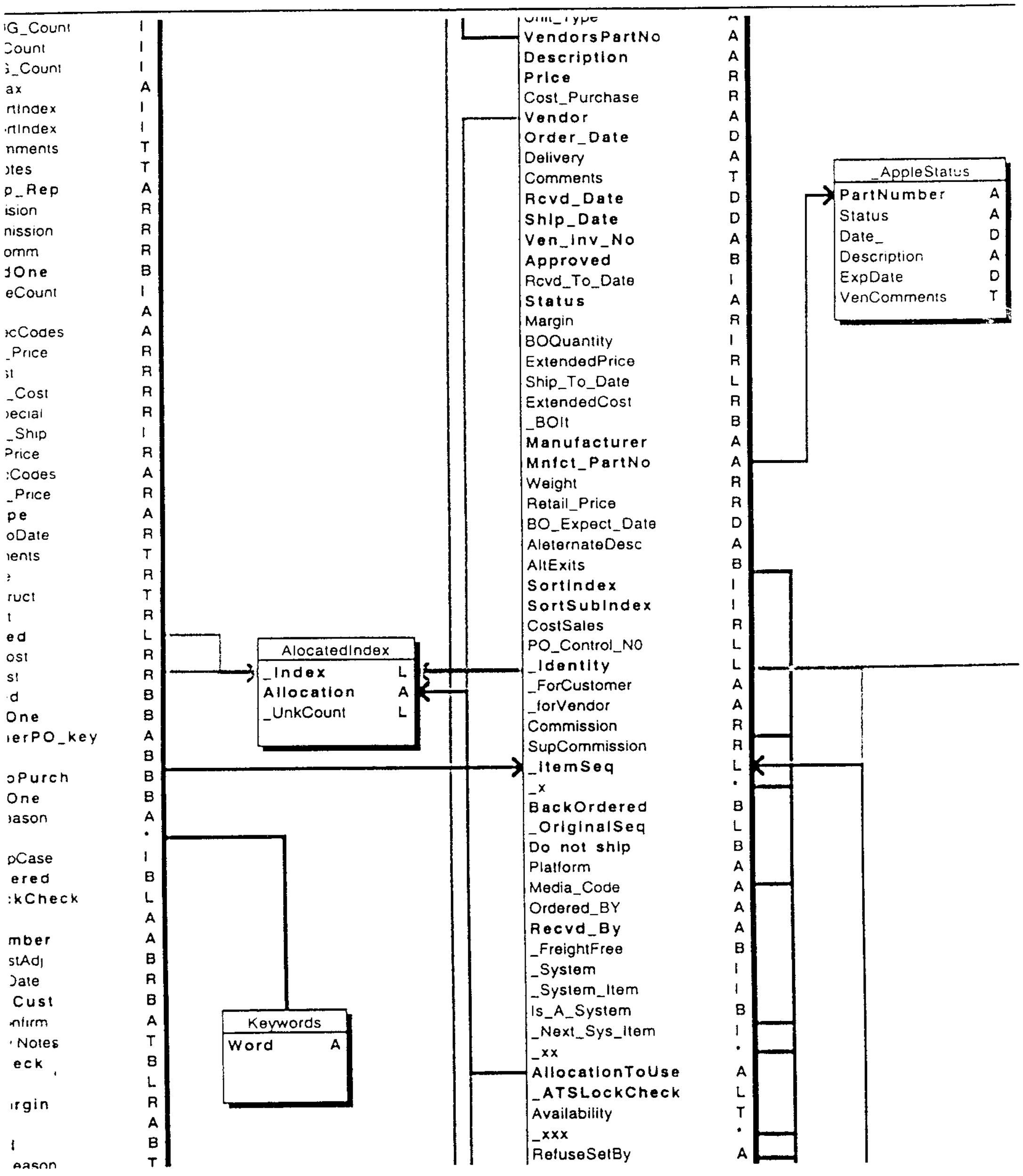
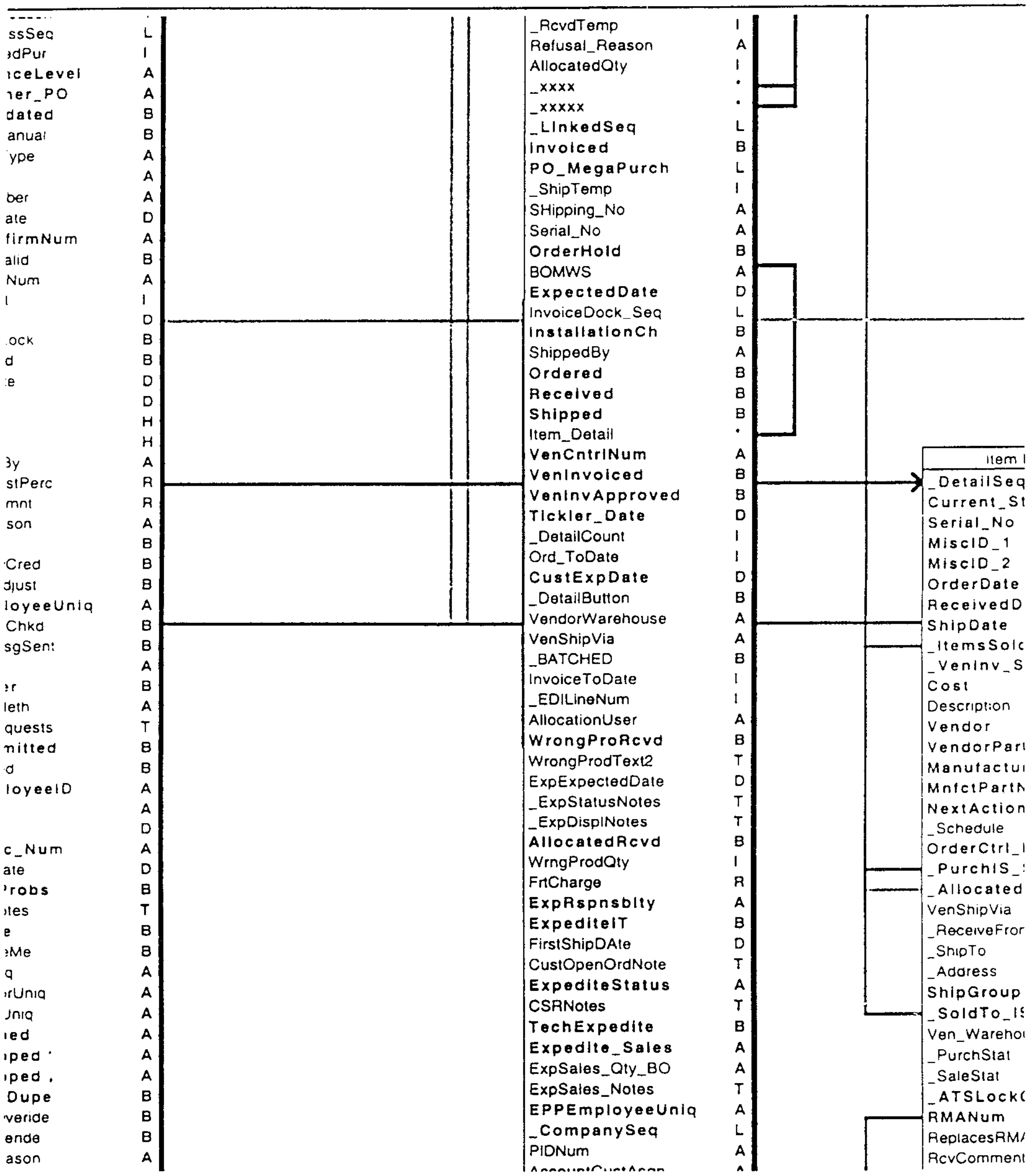


Structure for Mega3.5.4

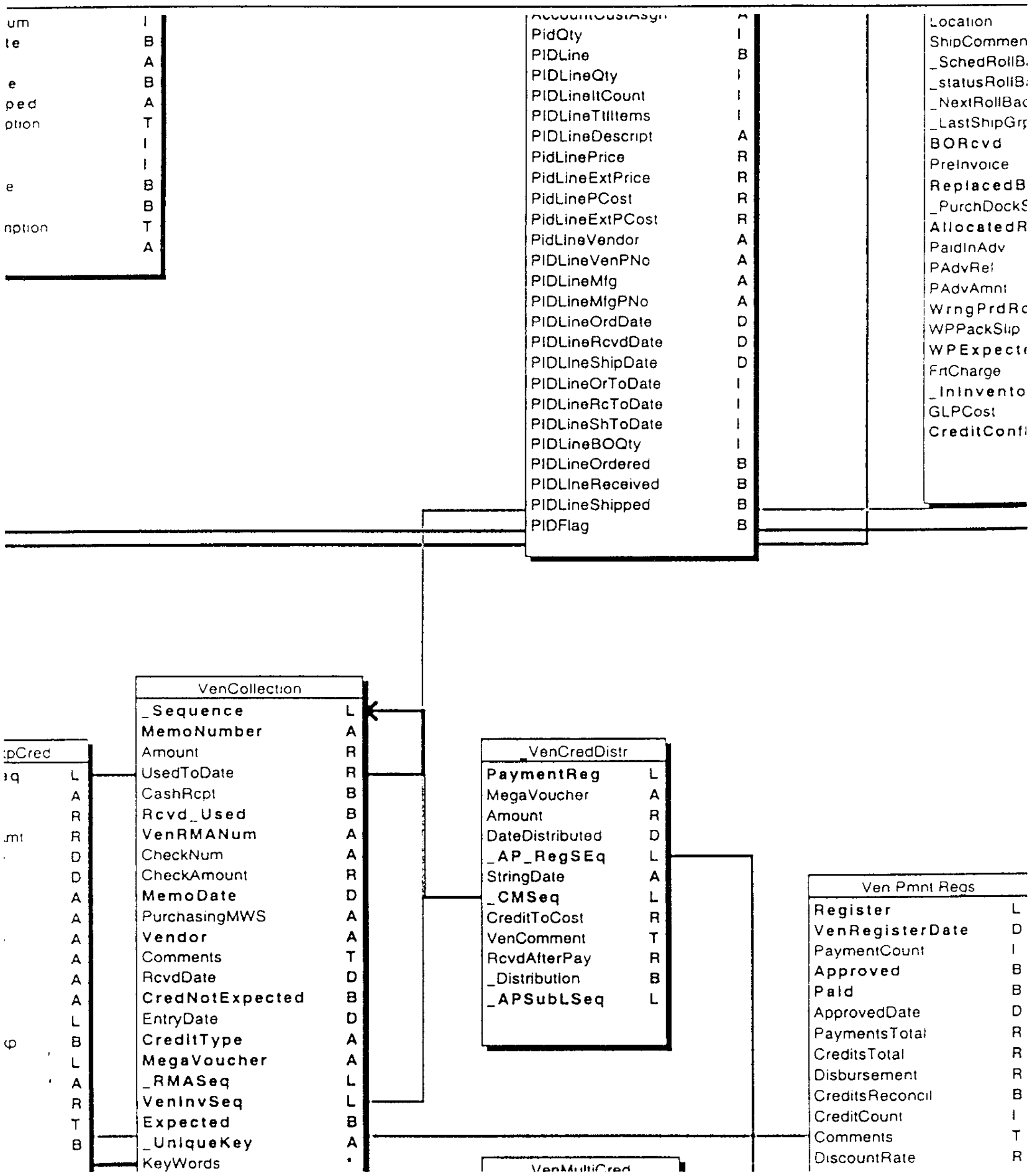


ssSeq	L
ıdPur	I
ıceLevel	A
ıer_PO	A
dated	B
anuai	B
ype	A
	A
ber	A
ate	D
firmNum	A
alid	B
Num	A
l	I
	D
.ock	B
d	B
:e	D
	D
	H
	H
3y	A
stPerc	R
mnt	R
son	A
	B
Cred	B
djust	B
loyeeUniq	A
Chkd	B
sgSent	B
	A
ır	B
leth	A
quests	T
mitted	B
d	B
loyeeID	A
	A
	D
c_Num	A
ate	D
robs	B
ıtes	T
e	B
Me	B
q	A
ırUniq	A
Jniq	A
ıed	A
ıped	A
ıped ,	A
Dupe	B
veride	B
ende	B
ason	A

_RcvdTemp	I
Refusal_Reason	A
AllocatedQty	I
_xxxx	•
_xxxxx	•
_LinkedSeq	L
Invoiced	B
PO_MegaPurch	L
_ShipTemp	I
SHipping_No	A
Serial_No	A
OrderHold	B
BOMWS	A
ExpectedDate	D
InvoiceDock_Seq	L
InstallationCh	B
ShippedBy	A
Ordered	B
Received	B
Shipped	B
Item_Detail	•
VenCntrlNum	A
VenInvoiced	B
VenInvApproved	B
Tickler_Date	D
_DetailCount	I
Ord_ToDate	I
CustExpDate	D
_DetailButton	B
VendorWarehouse	A
VenShipVia	A
_BATCHED	B
InvoiceToDate	I
_EDILineNum	I
AllocationUser	A
WrongProRcvd	B
WrongProdText2	T
ExpExpectedDate	D
_ExpStatusNotes	T
_ExpDisplNotes	T
AllocatedRcvd	B
WrngProdQty	I
FrtCharge	R
ExpRspnsblty	A
ExpediteIT	B
FirstShipDAte	D
CustOpenOrdNote	T
ExpediteStatus	A
CSRNotes	T
TechExpedite	B
Expedite_Sales	A
ExpSales_Qty_BO	A
ExpSales_Notes	T
EPPEmployeeUniq	A
_CompanySeq	L
PIDNum	A

Item I
_DetailSeq
Current_St
Serial_No
MiscID_1
MiscID_2
OrderDate
ReceivedD
ShipDate
_ItemsSolc
_VenInv_S
Cost
Description
Vendor
VendorPart
Manufactui
MnfctPartN
NextAction
_Schedule
OrderCtrl_I
PurchIS
_Allocated
VenShipVia
_ReceiveFror
_ShipTo
_Address
ShipGroup
_SoldTo_IS
Ven_Warehoı
_PurchStat
_SaleStat
_ATSLock(
RMANum
ReplacesRM/
RcvComment

Structure for Mega3.5.4



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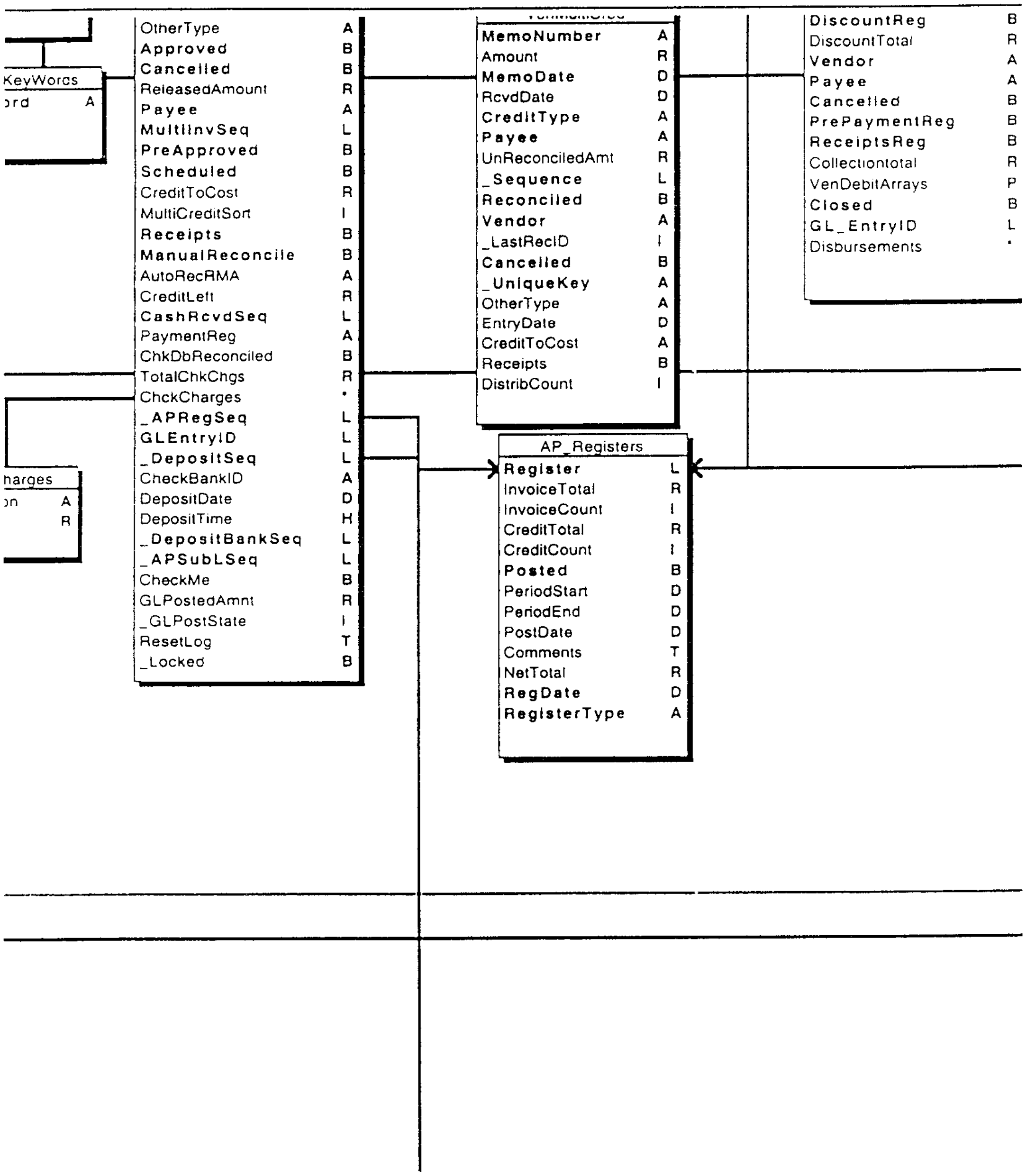

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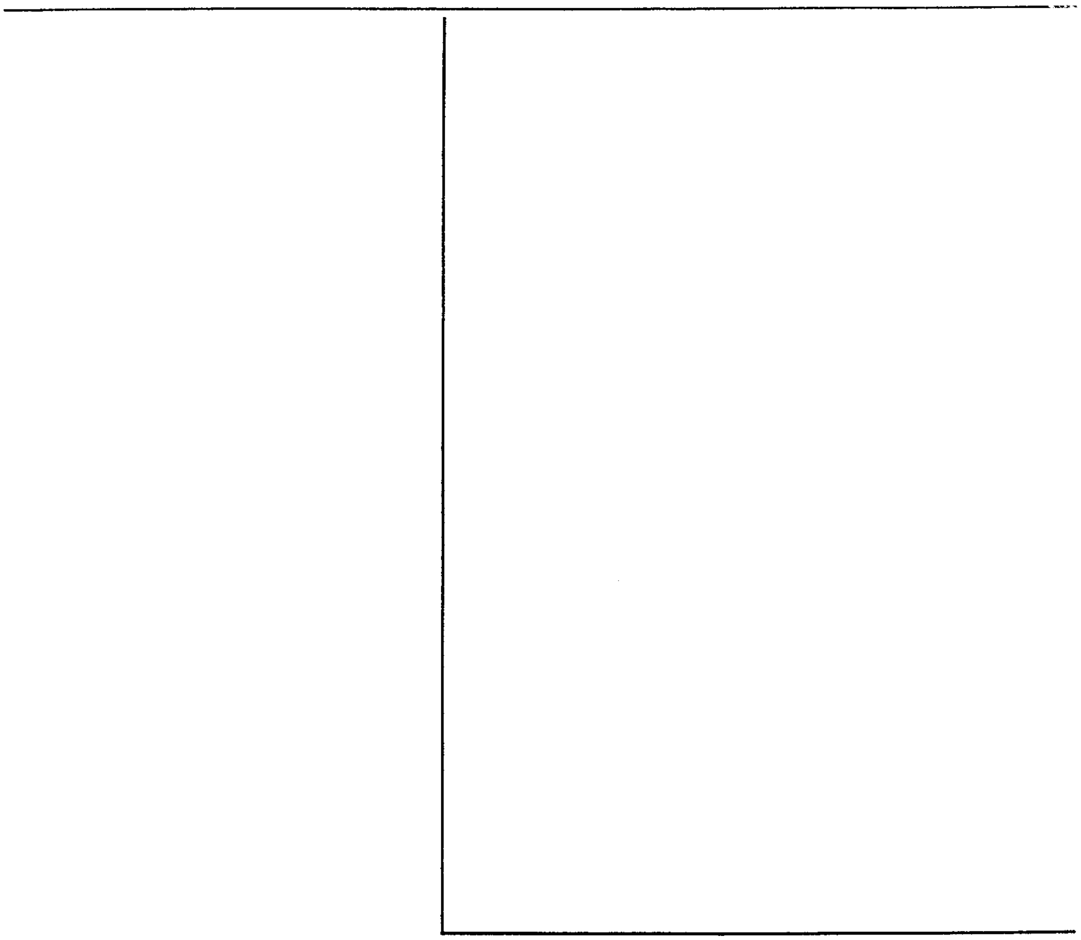


Structure for Mega3.5.4

Structure for Mega3.5.4

_ActsCustAsg	
Account	A
Description	A
CustomerSeq	L

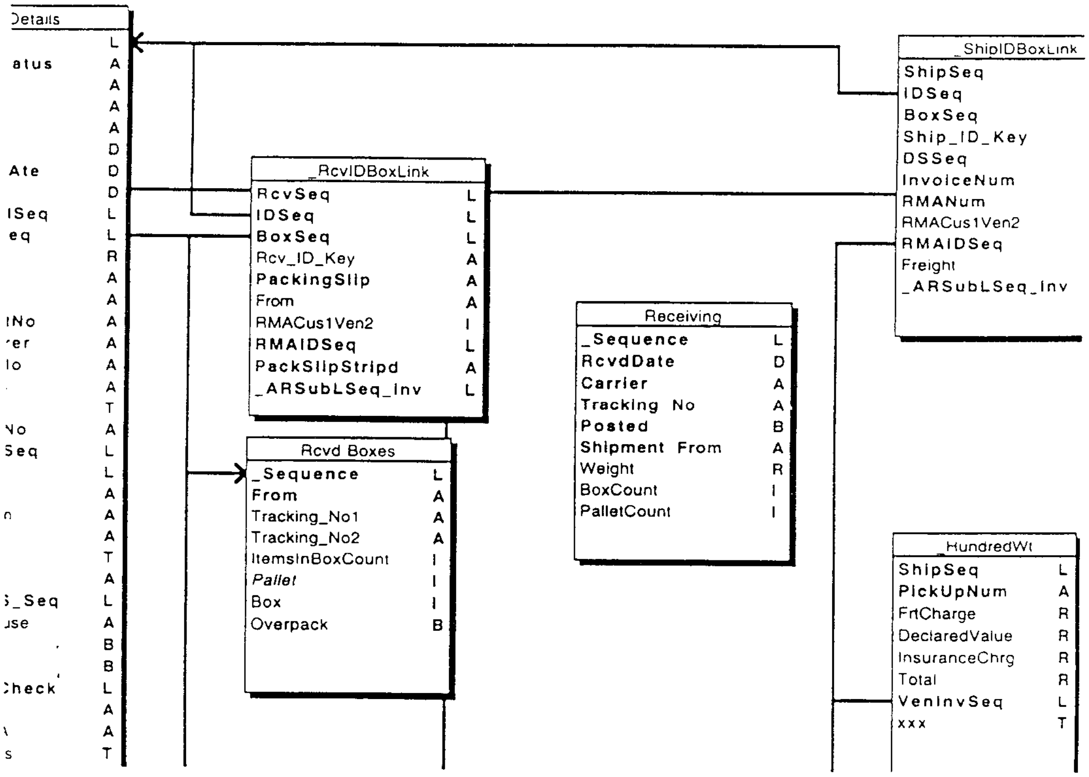
L
A
A
B

L
D
B
A

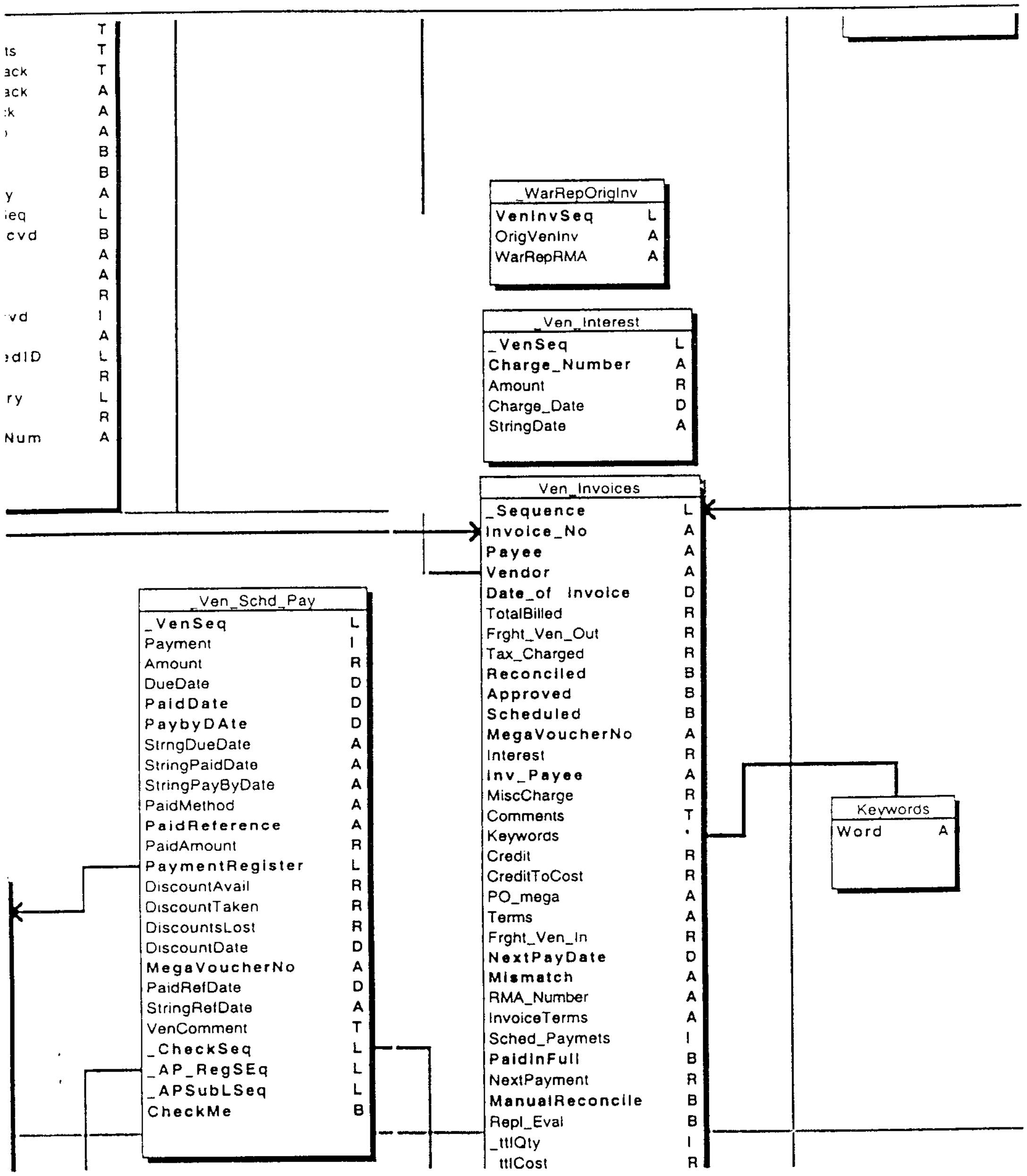
_ShortStock	
MfgPartNum	A
Stock	I
SSDate	D
MegaWaiting	I

Structure for Mega3.5.4

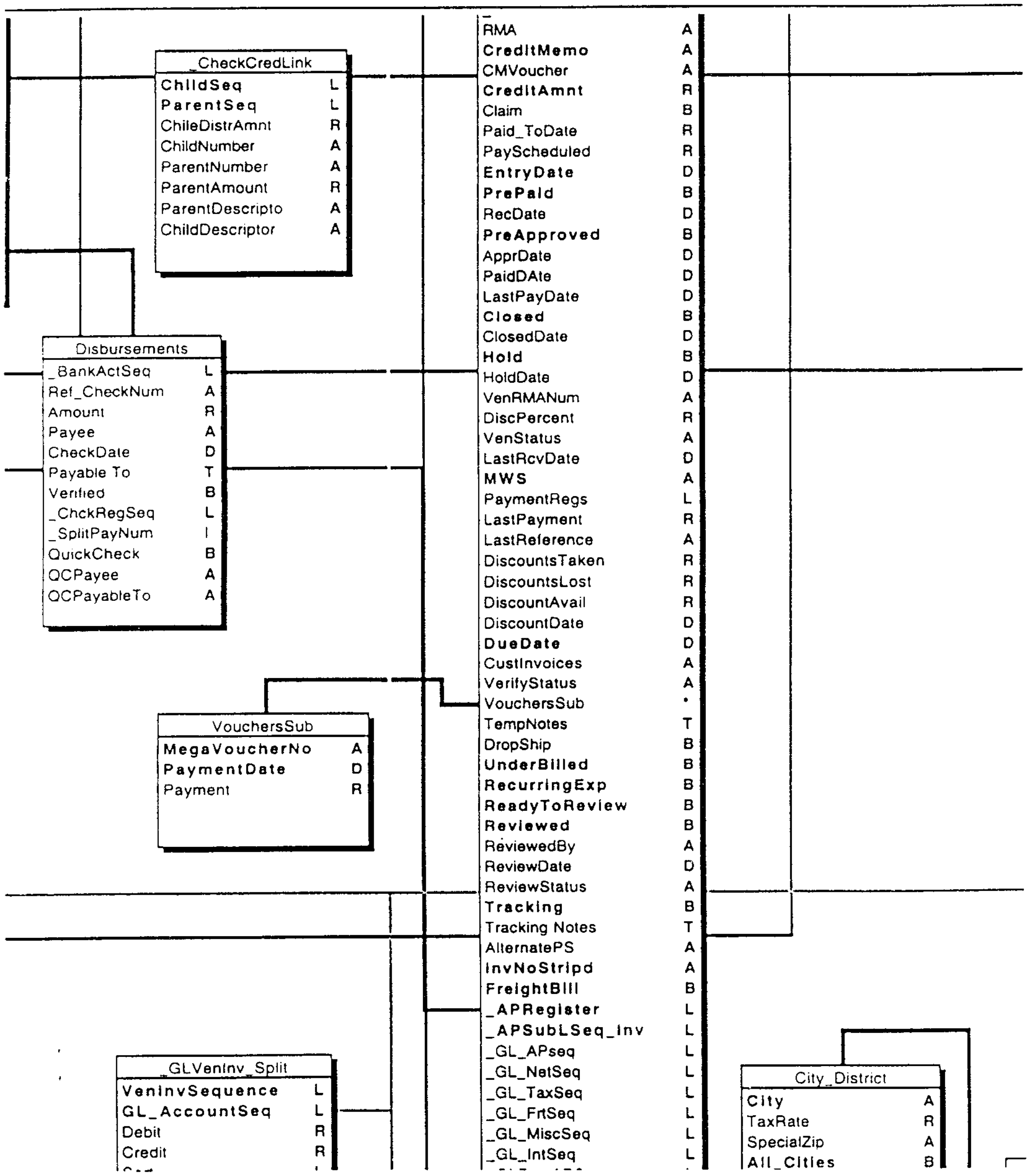
Structure for Mega3.5.4



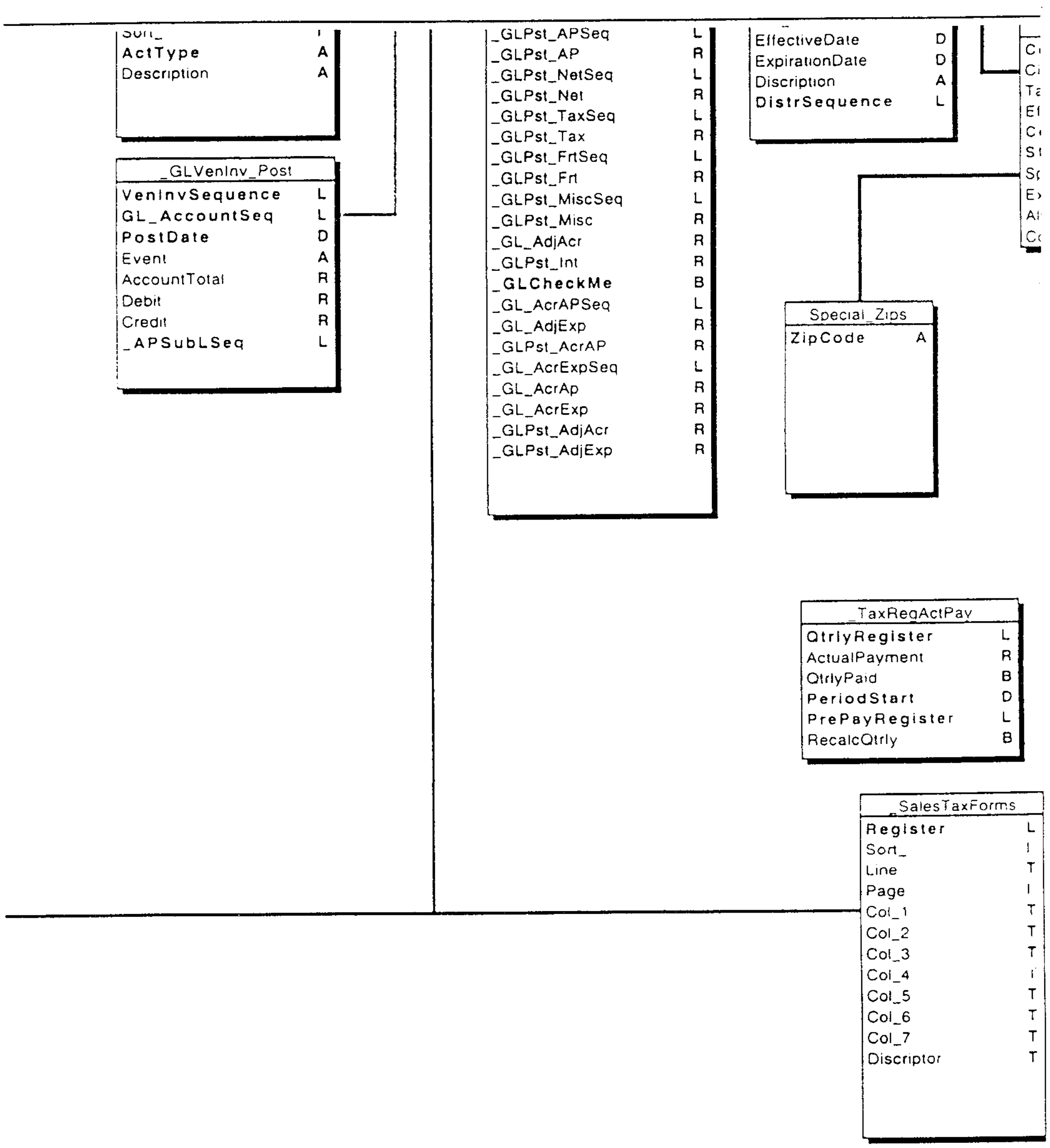
Structure for Mega3.5.4



Structure for Mega3.5.4

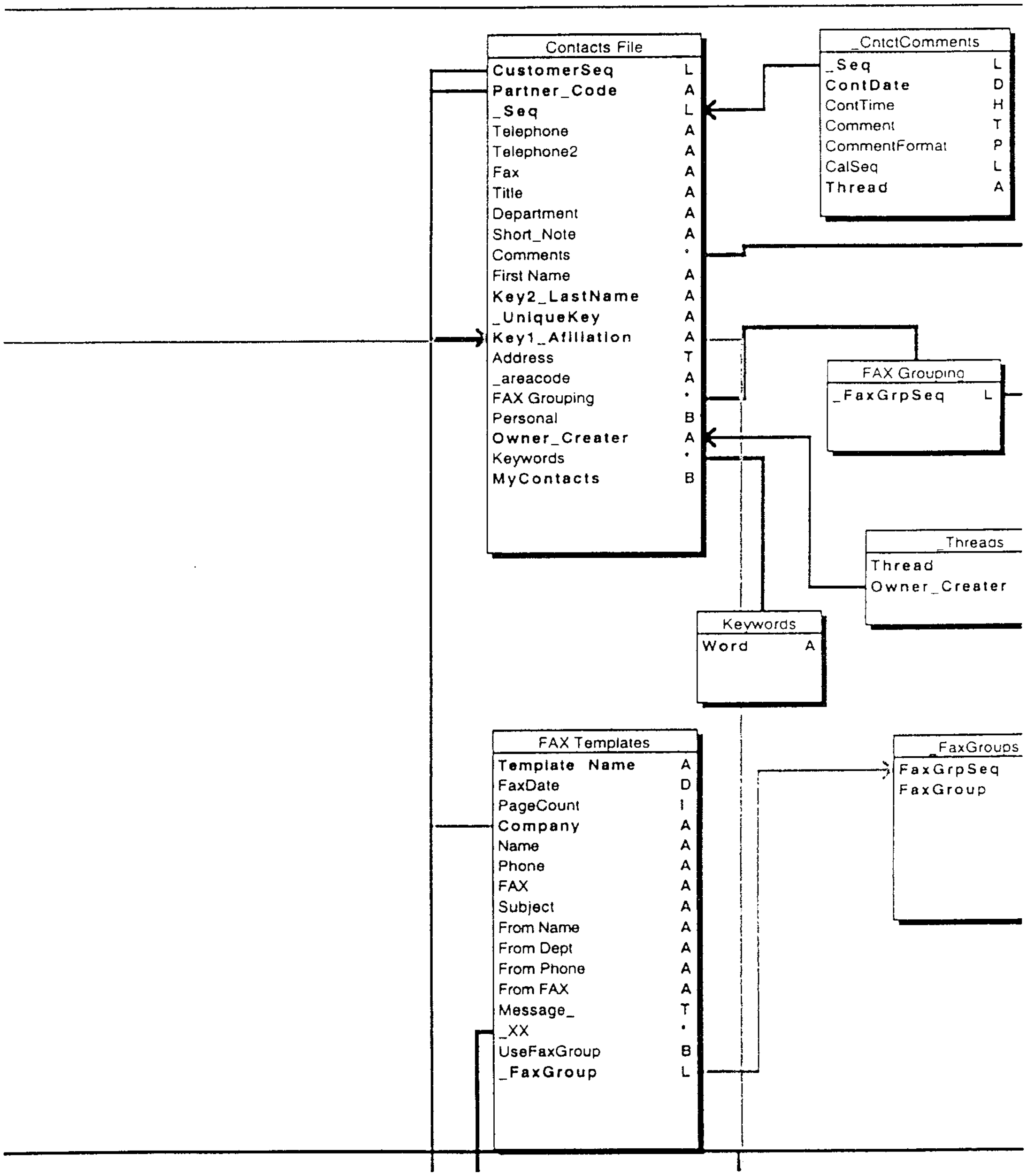


Structure for Mega3.5.4

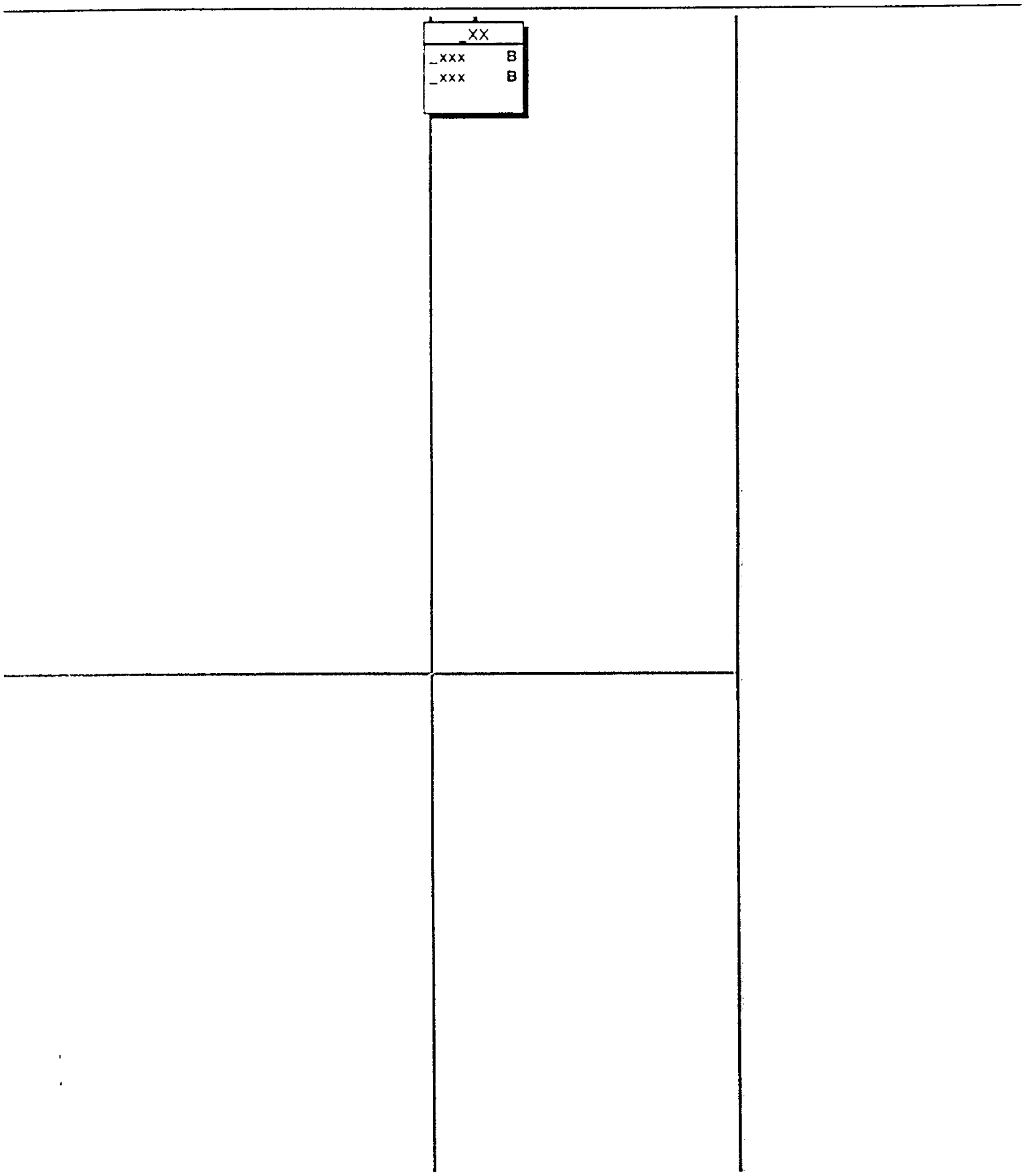


Structure for Mega3.5.4

Structure for Mega3.5.4



Structure for Mega3.5.4



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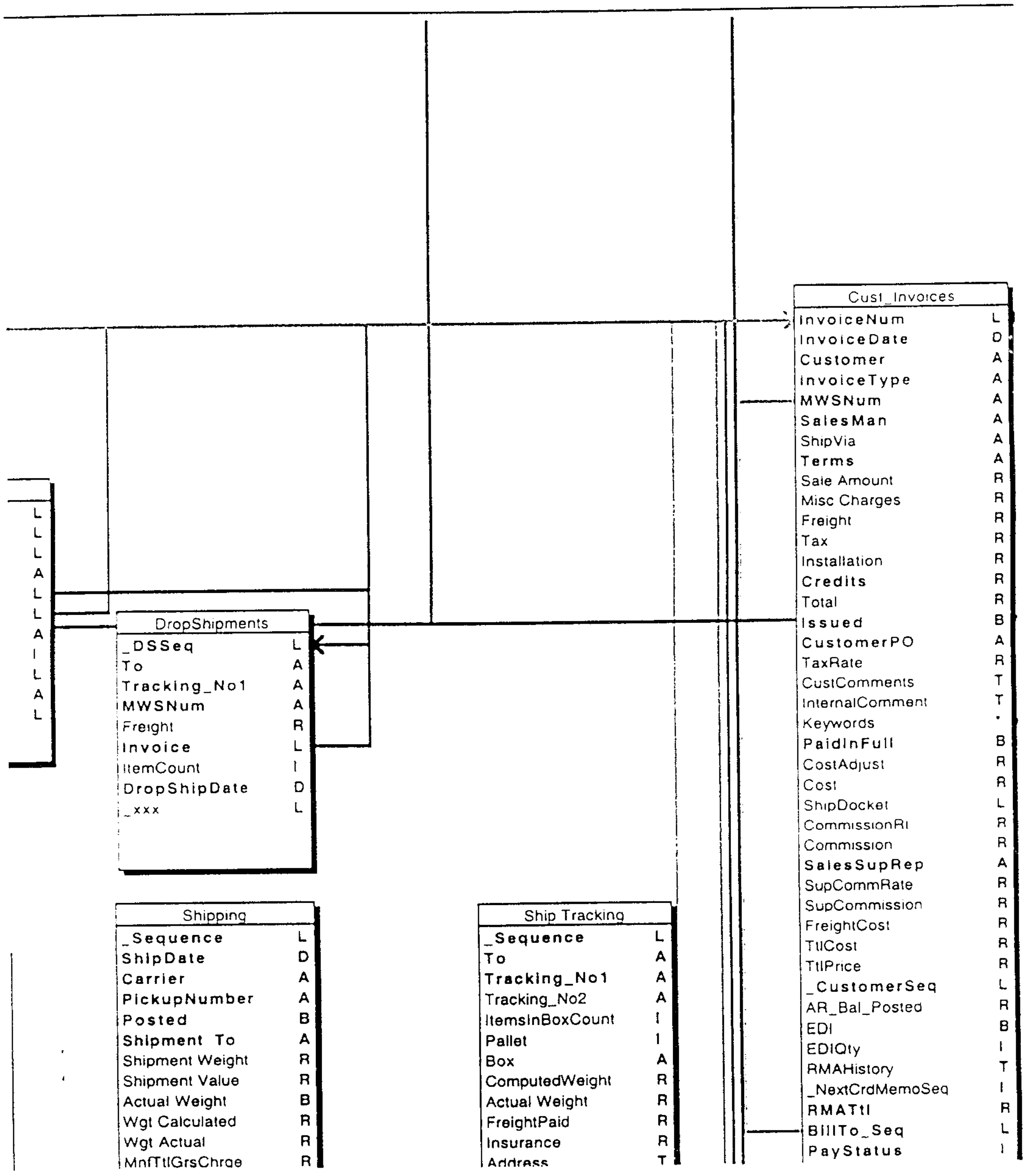


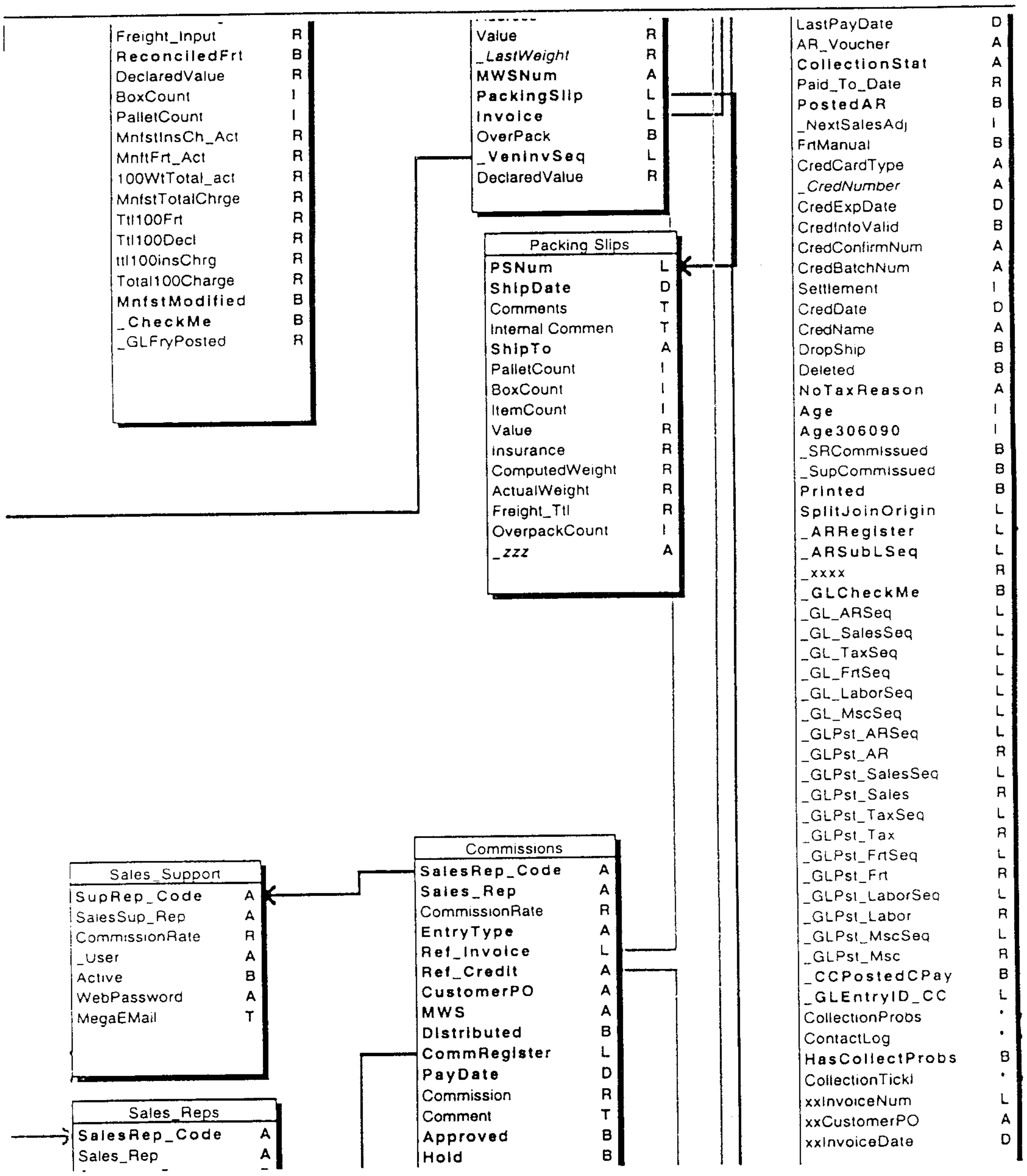
Cust_Invoices	
InvoiceNum	L
InvoiceDate	D
Customer	A
InvoiceType	A
MWSNum	A
SalesMan	A
ShipVia	A
Terms	A
Sale Amount	R
Misc Charges	R
Freight	R
Tax	R
Installation	R
Credits	R
Total	R
Issued	B
CustomerPO	A
TaxRate	R
CustComments	T
InternalComment	T
Keywords	•
PaidInFull	B
CostAdjust	R
Cost	R
ShipDocket	L
CommissionRt	R
Commission	R
SalesSupRep	A
SupCommRate	R
SupCommission	R
FreightCost	R
TtlCost	R
TtlPrice	R
_CustomerSeq	L
AR_Bal_Posted	R
EDI	B
EDIQty	I
RMAHistory	T
_NextCrdMemoSeq	I
RMATtl	R
BillTo_Seq	L
PayStatus	I

DropShipments	
_DSSeq	L
To	A
Tracking_No1	A
MWSNum	A
Freight	R
Invoice	L
ItemCount	I
DropShipDate	D
_xxx	L

Shipping	
_Sequence	L
ShipDate	D
Carrier	A
PickupNumber	A
Posted	B
Shipment To	A
Shipment Weight	R
Shipment Value	R
Actual Weight	B
Wgt Calculated	R
Wgt Actual	R
MnfTtlGrsChrge	R

Ship Tracking	
_Sequence	L
To	A
Tracking_No1	A
Tracking_No2	A
ItemsInBoxCount	I
Pallet	I
Box	A
ComputedWeight	R
Actual Weight	R
FreightPaid	R
Insurance	R
Address	T

Structure for Mega3.5.4



Freight_Input	R
ReconciledFrt	B
DeclaredValue	R
BoxCount	I
PalletCount	I
MnfstInsCh_Act	R
MnftFrt_Act	R
100WtTotal_act	R
MnfstTotalChrge	R
Ttl100Frt	R
Ttl100Decl	R
ttl100insChrg	R
Total100Charge	R
MnfstModified	B
_CheckMe	B
_GLFryPosted	R

Value	R
_LastWeight	R
MWSNum	A
PackingSlip	L
Invoice	L
OverPack	B
_VenInvSeq	L
DeclaredValue	R

Packing Slips

PSNum	L
ShipDate	D
Comments	T
Internal Commen	T
ShipTo	A
PalletCount	I
BoxCount	I
ItemCount	I
Value	R
Insurance	R
ComputedWeight	R
ActualWeight	R
Freight_Ttl	R
OverpackCount	I
_zzz	A

LastPayDate	D
AR_Voucher	A
CollectionStat	A
Paid_To_Date	R
PostedAR	B
_NextSalesAdj	I
FrtManual	B
CredCardType	A
_CredNumber	A
CredExpDate	D
CredInfoValid	B
CredConfirmNum	A
CredBatchNum	A
Settlement	I
CredDate	D
CredName	A
DropShip	B
Deleted	B
NoTaxReason	A
Age	I
Age306090	I
_SRCommissued	B
_SupCommissued	B
Printed	B
SplitJoinOrigin	L
_ARRegister	L
_ARSubLSeq	L
_xxxx	R
_GLCheckMe	B
_GL_ARSeq	L
_GL_SalesSeq	L
_GL_TaxSeq	L
_GL_FrtSeq	L
_GL_LaborSeq	L
_GL_MscSeq	L
_GLPst_ARSeq	L
_GLPst_AR	R
_GLPst_SalesSeq	L
_GLPst_Sales	R
_GLPst_TaxSeq	L
_GLPst_Tax	R
_GLPst_FrtSeq	L
_GLPst_Frt	R
_GLPst_LaborSeq	L
_GLPst_Labor	R
_GLPst_MscSeq	L
_GLPst_Msc	R
_CCPostedCPay	B
_GLEntryID_CC	L
CollectionProbs	•
ContactLog	•
HasCollectProbs	B
CollectionTickl	•
xxInvoiceNum	L
xxCustomerPO	A
xxInvoiceDate	D

Sales_Support

SupRep_Code	A
SalesSup_Rep	A
CommissionRate	R
_User	A
Active	B
WebPassword	A
MegaEMail	T

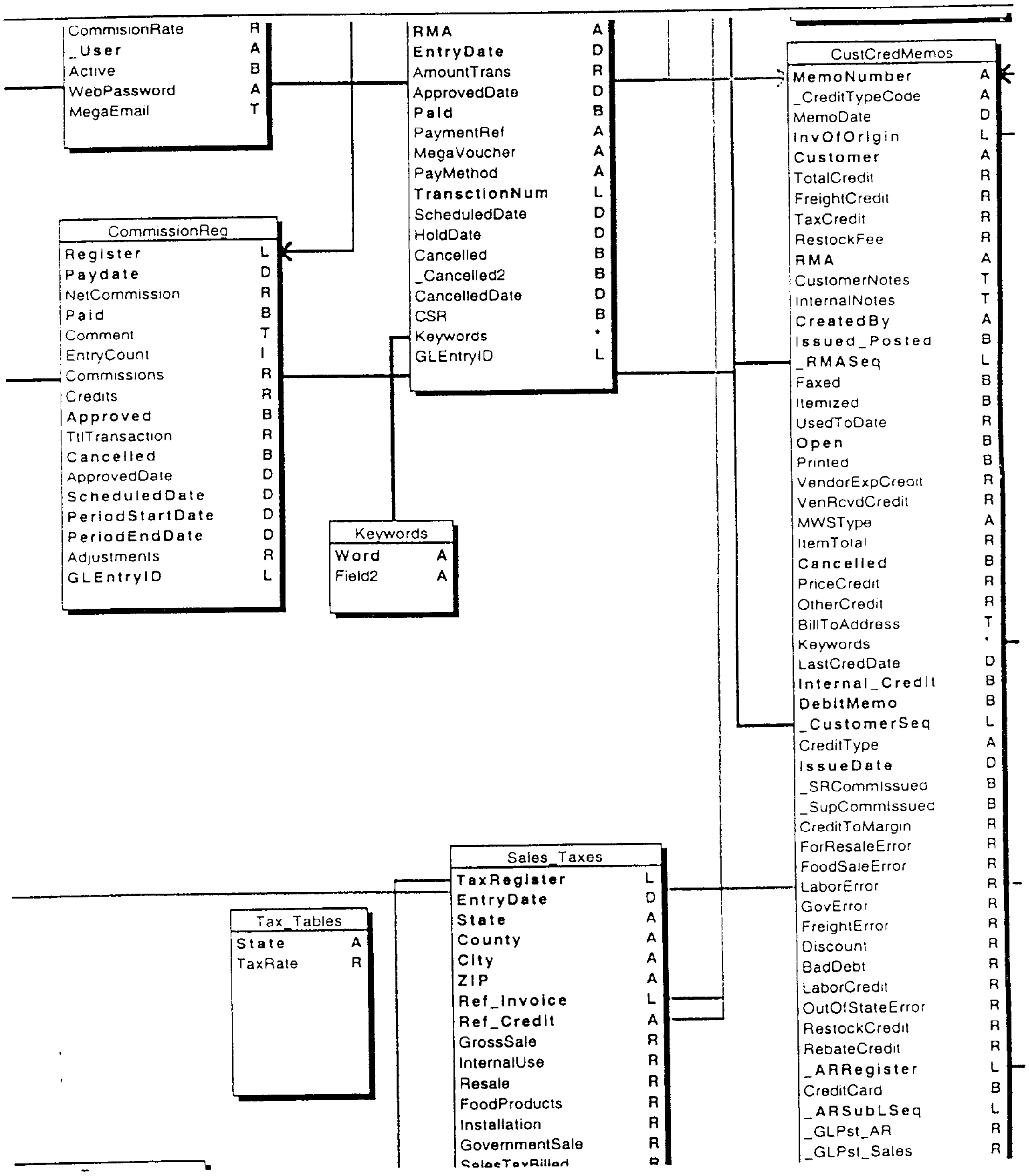
Commissions

SalesRep_Code	A
Sales_Rep	A
CommissionRate	R
EntryType	A
Ref_Invoice	L
Ref_Credit	A
CustomerPO	A
MWS	A
Distributed	B
CommRegister	L
PayDate	D
Commission	R
Comment	T
Approved	B
Hold	B

Sales_Reps

SalesRep_Code	A
Sales_Rep	A

Structure for Mega3.5.4



CommisionRate	R
_User	A
Active	B
WebPassword	A
MegaEmail	T

RMA	A
EntryDate	D
AmountTrans	R
ApprovedDate	D
Paid	B
PaymentRef	A
MegaVoucher	A
PayMethod	A
TransctionNum	L
ScheduledDate	D
HoldDate	D
Cancelled	B
_Cancelled2	B
CancelledDate	D
CSR	B
Keywords	•
GLEntryID	L

CommissionReg	
Register	L
Paydate	D
NetCommission	R
Paid	B
Comment	T
EntryCount	I
Commissions	R
Credits	R
Approved	B
TtlTransaction	R
Cancelled	B
ApprovedDate	D
ScheduledDate	D
PeriodStartDate	D
PeriodEndDate	D
Adjustments	R
GLEntryID	L

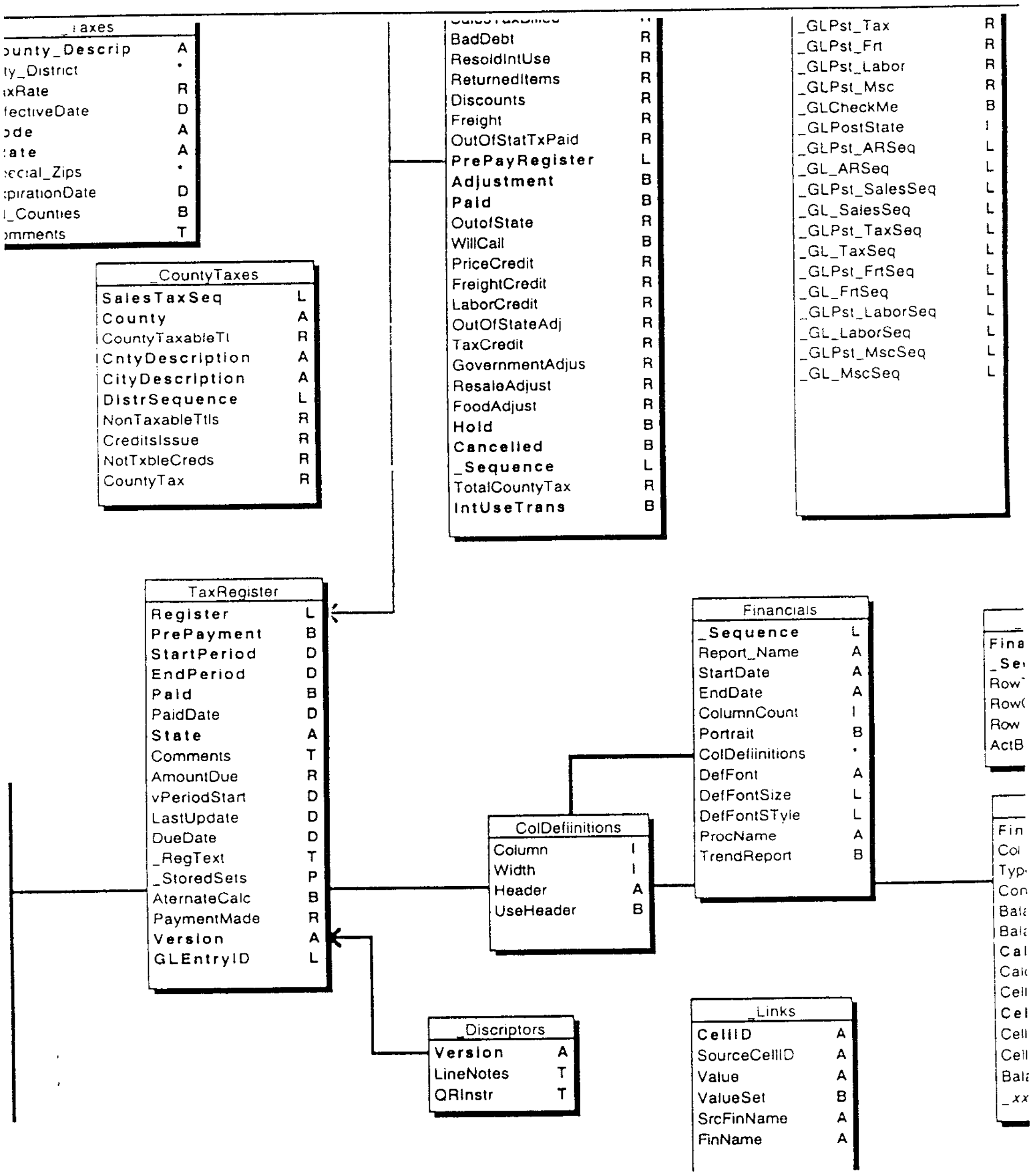
Keywords	
Word	A
Field2	A

CustCredMemos	
MemoNumber	A
_CreditTypeCode	A
MemoDate	D
InvOfOrigin	L
Customer	A
TotalCredit	R
FreightCredit	R
TaxCredit	R
RestockFee	R
RMA	A
CustomerNotes	T
InternalNotes	T
CreatedBy	A
Issued_Posted	B
_RMASeq	L
Faxed	B
Itemized	B
UsedToDate	R
Open	B
Printed	B
VendorExpCredit	R
VenRcvdCredit	R
MWSType	A
ItemTotal	R
Cancelled	B
PriceCredit	R
OtherCredit	R
BillToAddress	T
Keywords	•
LastCredDate	D
Internal_Credit	B
DebitMemo	B
_CustomerSeq	L
CreditType	A
IssueDate	D
_SRCommissued	B
_SupCommissued	B
CreditToMargin	R
ForResaleError	R
FoodSaleError	R
LaborError	R
GovError	R
FreightError	R
Discount	R
BadDebt	R
LaborCredit	R
OutOfStateError	R
RestockCredit	R
RebateCredit	R
_ARRegister	L
CreditCard	B
_ARSubLSeq	L
_GLPst_AR	R
_GLPst_Sales	R

Tax_Tables	
State	A
TaxRate	R

Sales_Taxes	
TaxRegister	L
EntryDate	D
State	A
County	A
City	A
ZIP	A
Ref_Invoice	L
Ref_Credit	A
GrossSale	R
InternalUse	R
Resale	R
FoodProducts	R
Installation	R
GovernmentSale	R
SalesTaxBilled	R

Structure for Mega3.5.4



_ı axes	
ounty_Descrip	A
ty_District	•
ıxRate	R
fectiveDate	D
ode	A
ate	A
ecial_Zips	•
pirationDate	D
_Counties	B
omments	T

_CountyTaxes	
SalesTaxSeq	L
County	A
CountyTaxableTl	R
CntyDescription	A
CityDescription	A
DistrSequence	L
NonTaxableTtls	R
CreditsIssue	R
NotTxbleCreds	R
CountyTax	R

BadDebt	R
ResoldIntUse	R
ReturnedItems	R
Discounts	R
Freight	R
OutOfStatTxPaid	R
PrePayRegister	L
Adjustment	B
Paid	B
OutofState	R
WillCall	B
PriceCredit	R
FreightCredit	R
LaborCredit	R
OutOfStateAdj	R
TaxCredit	R
GovernmentAdjus	R
ResaleAdjust	R
FoodAdjust	R
Hold	B
Cancelled	B
_Sequence	L
TotalCountyTax	R
IntUseTrans	B

_GLPst_Tax	R
_GLPst_Frt	R
_GLPst_Labor	R
_GLPst_Msc	R
_GLCheckMe	B
_GLPostState	I
_GLPst_ARSeq	L
_GL_ARSeq	L
_GLPst_SalesSeq	L
_GL_SalesSeq	L
_GLPst_TaxSeq	L
_GL_TaxSeq	L
_GLPst_FrtSeq	L
_GL_FrtSeq	L
_GLPst_LaborSeq	L
_GL_LaborSeq	L
_GLPst_MscSeq	L
_GL_MscSeq	L

TaxRegister	
Register	L
PrePayment	B
StartPeriod	D
EndPeriod	D
Paid	B
PaidDate	D
State	A
Comments	T
AmountDue	R
vPeriodStart	D
LastUpdate	D
DueDate	D
_RegText	T
_StoredSets	P
AternateCalc	B
PaymentMade	R
Version	A
GLEntryID	L

Financials	
_Sequence	L
Report_Name	A
StartDate	A
EndDate	A
ColumnCount	I
Portrait	B
ColDefiinitions	•
DefFont	A
DefFontSize	L
DefFontSTyle	L
ProcName	A
TrendReport	B

ColDefiinitions	
Column	I
Width	I
Header	A
UseHeader	B

_Discriptors	
Version	A
LineNotes	T
QRInstr	T

_Links	
CellID	A
SourceCellID	A
Value	A
ValueSet	B
SrcFinName	A
FinName	A

Fina
_Se
Row
Row(
Row
ActB

Fin
Col
Typ
Con
Bal
Bal
Cal
Cal
Cell
Cel
Cell
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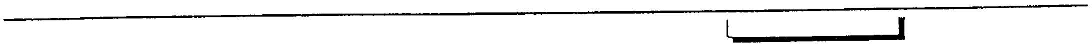
_xx

Structure for Mega3.5.4



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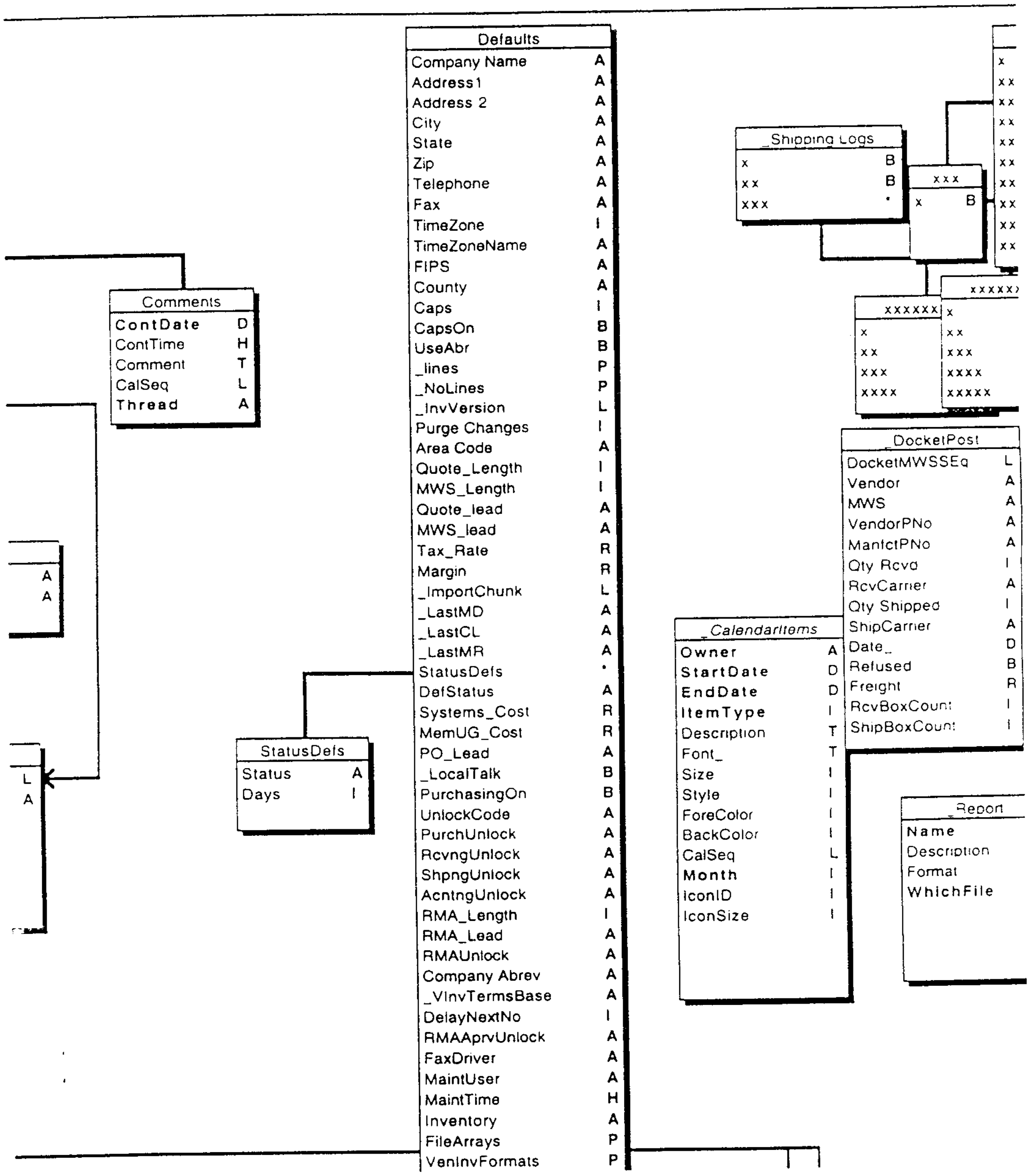
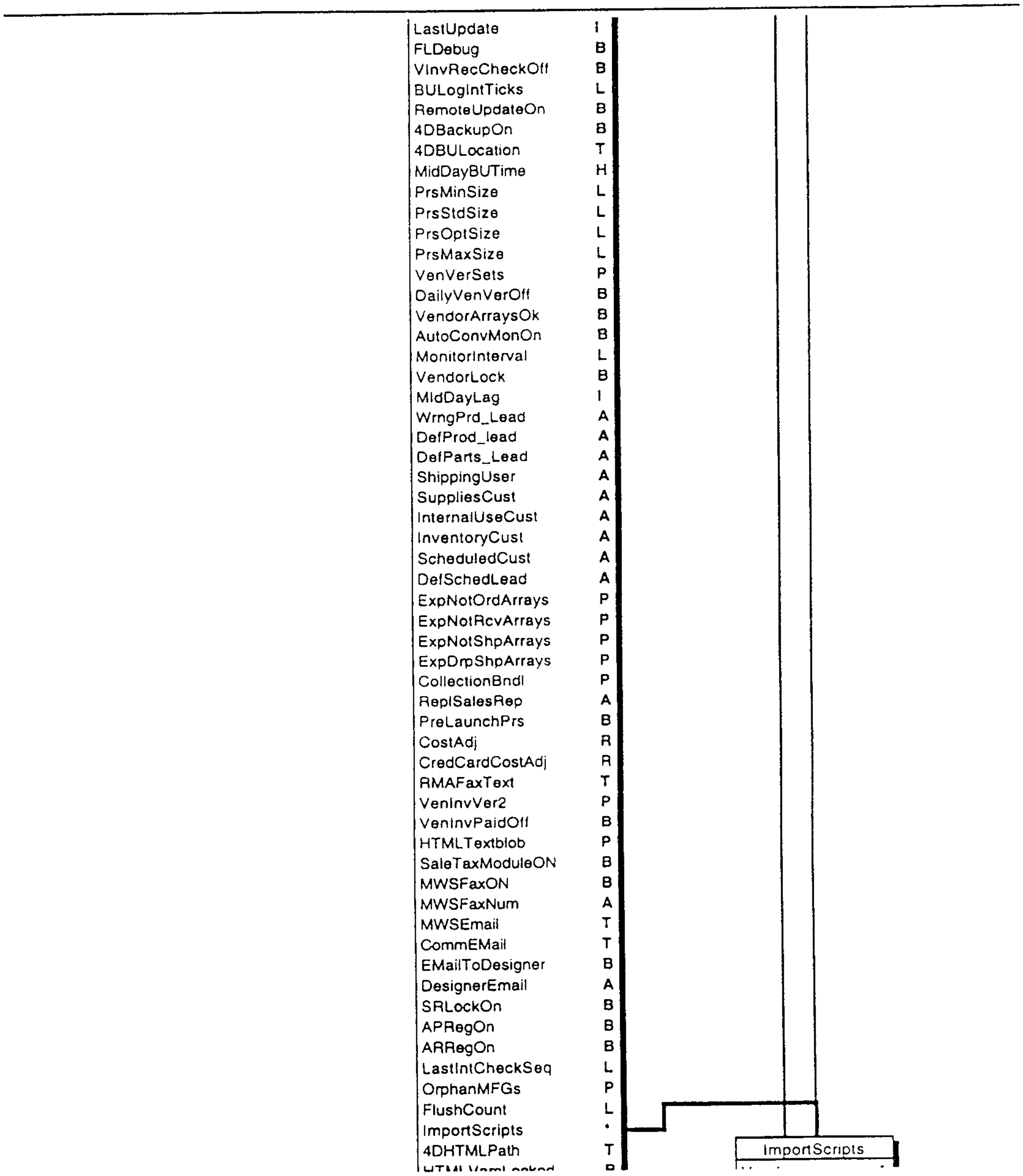
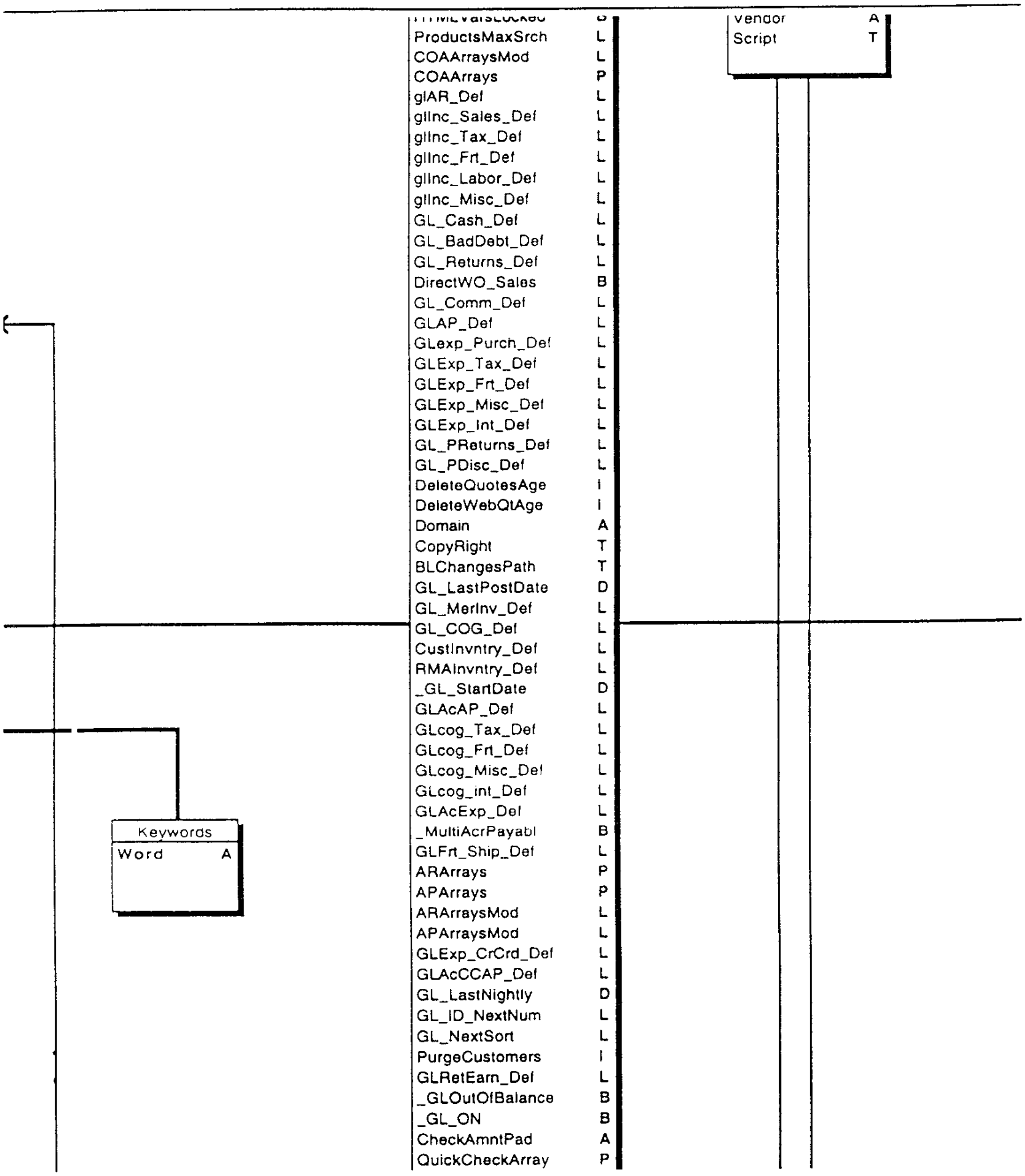


Structure for Mega3.5.4



LastUpdate	I
FLDebug	B
VInvRecCheckOff	B
BULogIntTicks	L
RemoteUpdateOn	B
4DBackupOn	B
4DBULocation	T
MidDayBUTime	H
PrsMinSize	L
PrsStdSize	L
PrsOptSize	L
PrsMaxSize	L
VenVerSets	P
DailyVenVerOff	B
VendorArraysOk	B
AutoConvMonOn	B
MonitorInterval	L
VendorLock	B
MidDayLag	I
WrngPrd_Lead	A
DefProd_lead	A
DefParts_Lead	A
ShippingUser	A
SuppliesCust	A
InternalUseCust	A
InventoryCust	A
ScheduledCust	A
DefSchedLead	A
ExpNotOrdArrays	P
ExpNotRcvArrays	P
ExpNotShpArrays	P
ExpDrpShpArrays	P
CollectionBndl	P
ReplSalesRep	A
PreLaunchPrs	B
CostAdj	R
CredCardCostAdj	R
RMAFaxText	T
VenInvVer2	P
VenInvPaidOff	B
HTMLTextblob	P
SaleTaxModuleON	B
MWSFaxON	B
MWSFaxNum	A
MWSEmail	T
CommEMail	T
EMailToDesigner	B
DesignerEmail	A
SRLockOn	B
APRegOn	B
ARRegOn	B
LastIntCheckSeq	L
OrphanMFGs	P
FlushCount	L
ImportScripts	•
4DHTMLPath	T

Structure for Mega3.5.4

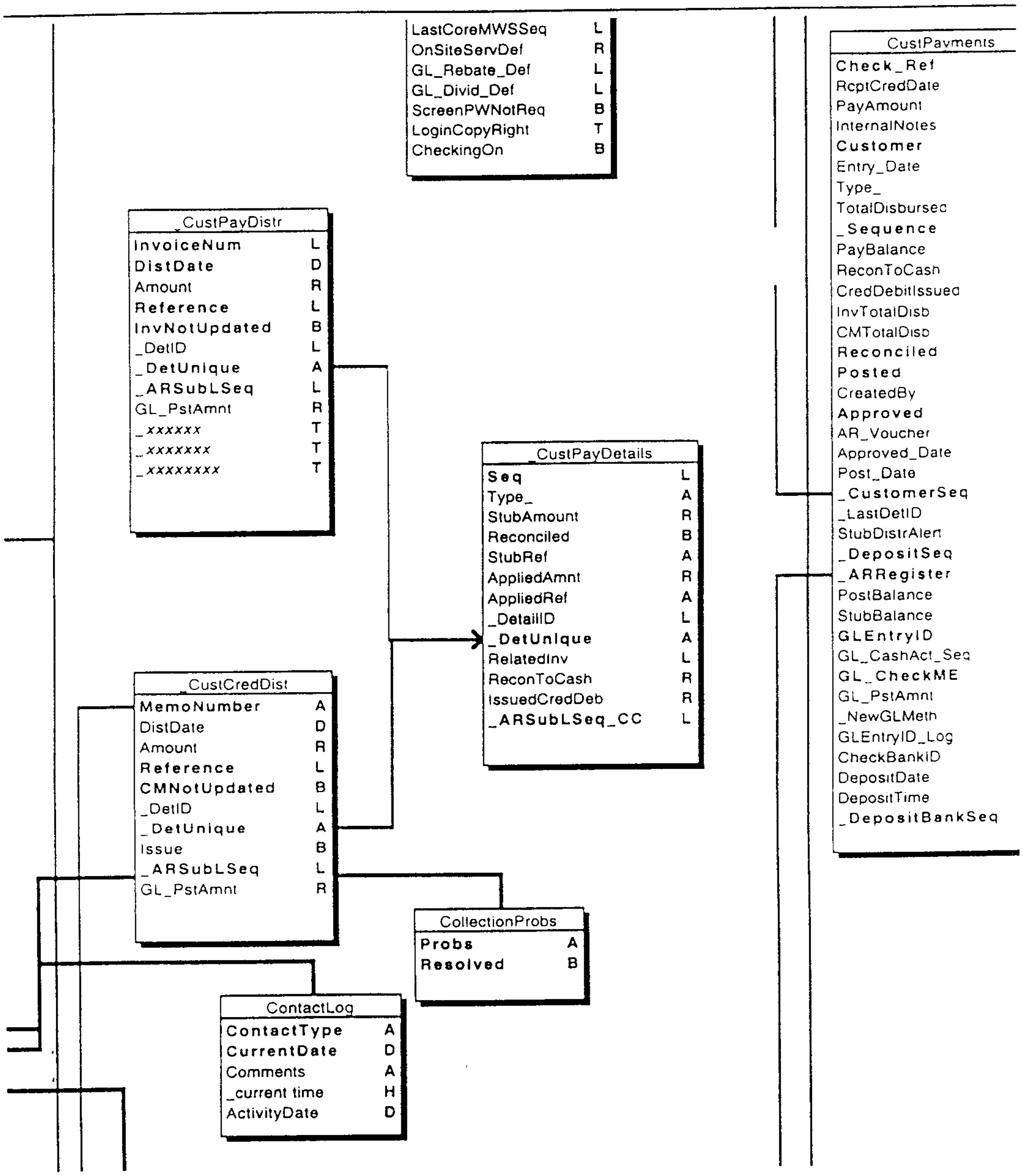


ProductsMaxSrch	L
COAArraysMod	L
COAArrays	P
glAR_Def	L
glInc_Sales_Def	L
glInc_Tax_Def	L
glInc_Frt_Def	L
glInc_Labor_Def	L
glInc_Misc_Def	L
GL_Cash_Def	L
GL_BadDebt_Def	L
GL_Returns_Def	L
DirectWO_Sales	B
GL_Comm_Def	L
GLAP_Def	L
GLexp_Purch_Def	L
GLExp_Tax_Def	L
GLExp_Frt_Def	L
GLExp_Misc_Def	L
GLExp_Int_Def	L
GL_PReturns_Def	L
GL_PDisc_Def	L
DeleteQuotesAge	I
DeleteWebQtAge	I
Domain	A
CopyRight	T
BLChangesPath	T
GL_LastPostDate	D
GL_MerInv_Def	L
GL_COG_Def	L
CustInvntry_Def	L
RMAInvntry_Def	L
_GL_StartDate	D
GLAcAP_Def	L
GLcog_Tax_Def	L
GLcog_Frt_Def	L
GLcog_Misc_Def	L
GLcog_int_Def	L
GLAcExp_Def	L
_MultiAcrPayabl	B
GLFrt_Ship_Def	L
ARArrays	P
APArrays	P
ARArraysMod	L
APArraysMod	L
GLExp_CrCrd_Def	L
GLAcCCAP_Def	L
GL_LastNightly	D
GL_ID_NextNum	L
GL_NextSort	L
PurgeCustomers	I
GLRetEarn_Def	L
_GLOutOfBalance	B
_GL_ON	B
CheckAmntPad	A
QuickCheckArray	P

Vendor	A
Script	T

Keywords	
Word	A

Structure for Mega3.5.4



LastCoreMWSSeq	L
OnSiteServDef	R
GL_Rebate_Def	L
GL_Divid_Def	L
ScreenPWNotReq	B
LoginCopyRight	T
CheckingOn	B

_CustPayDistr	
InvoiceNum	L
DistDate	D
Amount	R
Reference	L
InvNotUpdated	B
_DetID	L
_DetUnique	A
_ARSubLSeq	L
GL_PstAmnt	R
_xxxxxx	T
_xxxxxxx	T
_xxxxxxxx	T

CustPayDetails	
Seq	L
Type_	A
StubAmount	R
Reconciled	B
StubRef	A
AppliedAmnt	R
AppliedRef	A
_DetailID	L
_DetUnique	A
RelatedInv	L
ReconToCash	R
IssuedCredDeb	R
_ARSubLSeq_CC	L

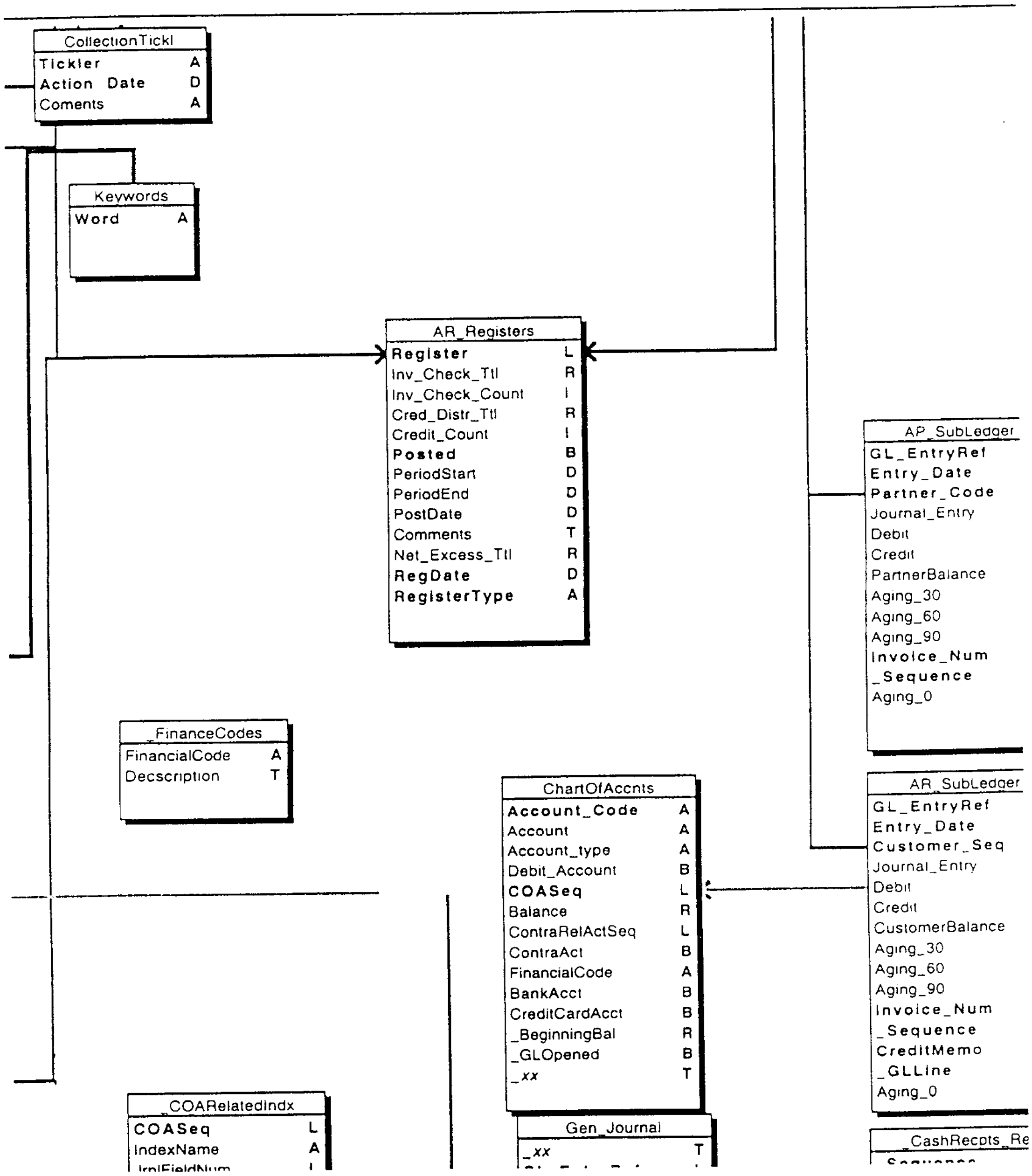
CustPayments
Check_Ref
RcptCredDate
PayAmount
InternalNotes
Customer
Entry_Date
Type_
TotalDisbursed
_Sequence
PayBalance
ReconToCash
CredDebitIssued
InvTotalDisb
CMTotalDisb
Reconciled
Posted
CreatedBy
Approved
AR_Voucher
Approved_Date
Post_Date
_CustomerSeq
_LastDetID
StubDistrAlert
_DepositSeq
_ARRegister
PostBalance
StubBalance
GLEntryID
GL_CashAct_Seq
GL_CheckME
GL_PstAmnt
_NewGLMeth
GLEntryID_Log
CheckBankID
DepositDate
DepositTime
_DepositBankSeq

_CustCredDist	
MemoNumber	A
DistDate	D
Amount	R
Reference	L
CMNotUpdated	B
_DetID	L
_DetUnique	A
Issue	B
_ARSubLSeq	L
GL_PstAmnt	R

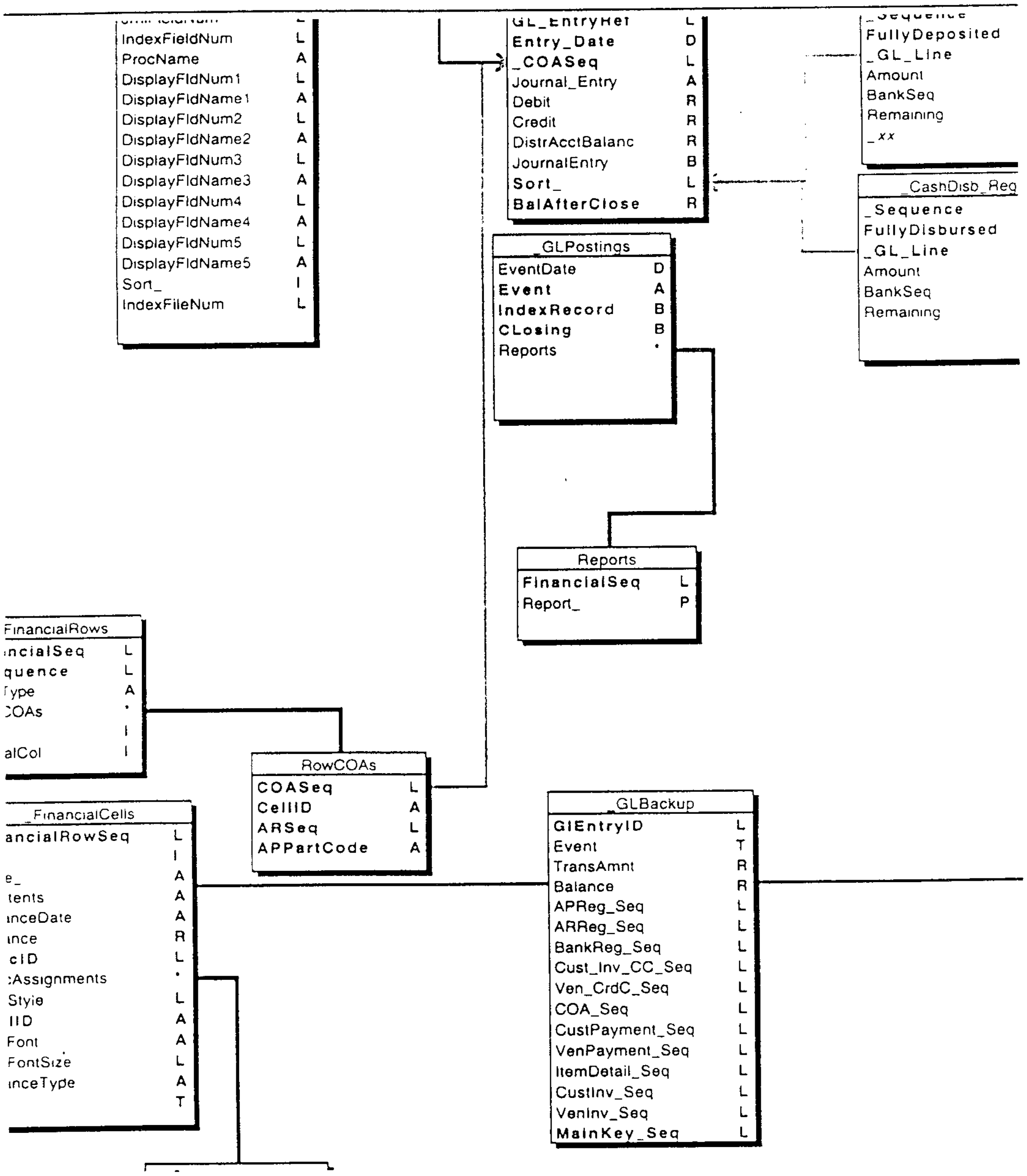
CollectionProbs	
Probs	A
Resolved	B

ContactLog	
ContactType	A
CurrentDate	D
Comments	A
_current time	H
ActivityDate	D

Structure for Mega3.5.4



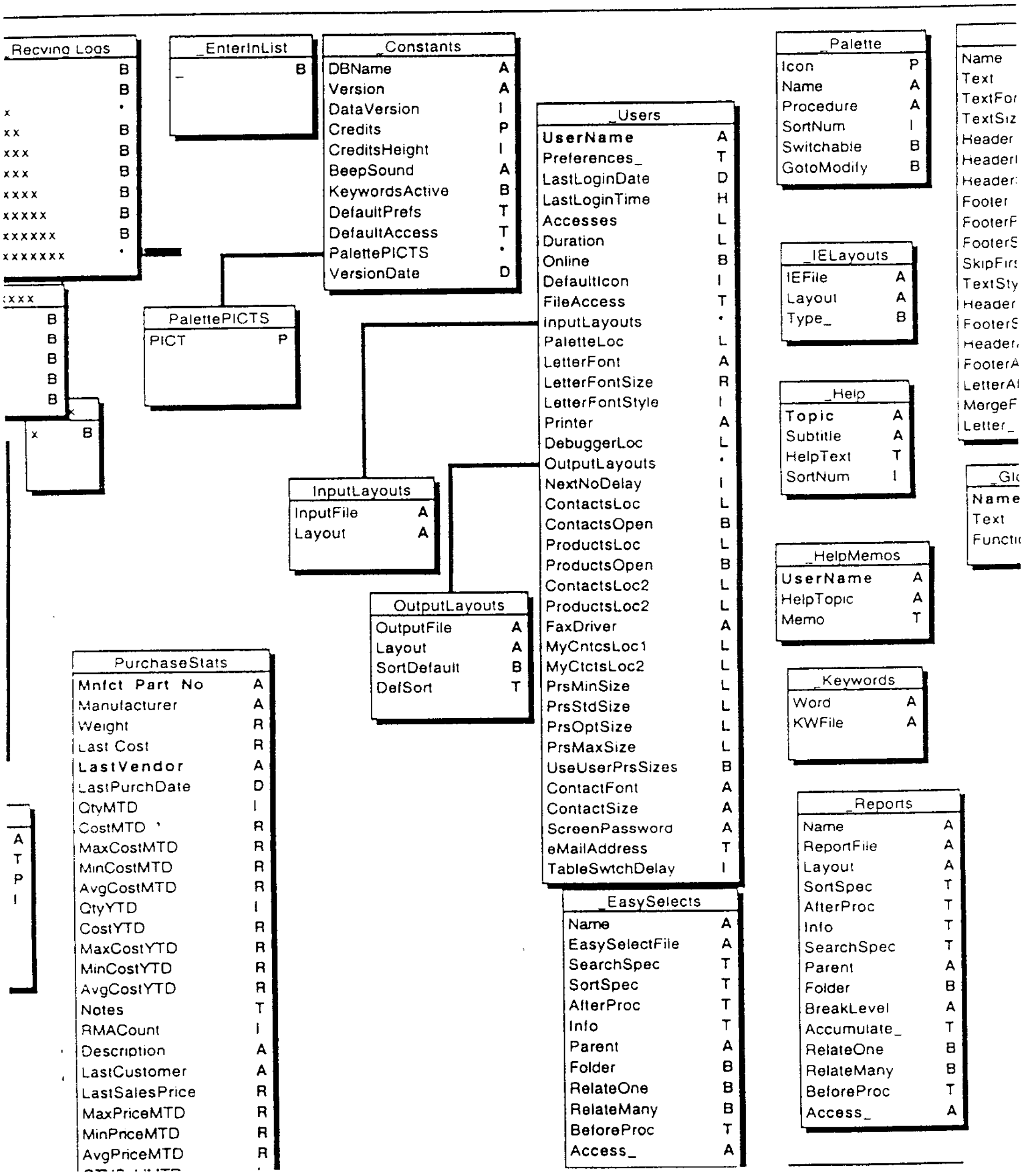
Structure for Mega3.5.4



Structure for Mega3.5.4

CalcAssignments	
CalcID	L
Mutiplier	I

Structure for Mega3.5.4



Recvinq Loas	
	B
	B
x	•
xx	B
xxx	B
xxx	B
xxxx	B
xxxxx	B
xxxxxx	B
xxxxxxx	•

:xxx	
	B
	B
	B
	B
	B

x	
x	B

A	
T	
P	
I	

_EnterInList	
_	B

_Constants	
DBName	A
Version	A
DataVersion	I
Credits	P
CreditsHeight	I
BeepSound	A
KeywordsActive	B
DefaultPrefs	T
DefaultAccess	T
PalettePICTS	•
VersionDate	D

PalettePICTS	
PICT	P

_Users	
UserName	A
Preferences_	T
LastLoginDate	D
LastLoginTime	H
Accesses	L
Duration	L
Online	B
DefaultIcon	I
FileAccess	T
InputLayouts	•
PaletteLoc	L
LetterFont	A
LetterFontSize	R
LetterFontStyle	I
Printer	A
DebuggerLoc	L
OutputLayouts	•
NextNoDelay	I
ContactsLoc	L
ContactsOpen	B
ProductsLoc	L
ProductsOpen	B
ContactsLoc2	L
ProductsLoc2	L
FaxDriver	A
MyCntcsLoc1	L
MyCtctsLoc2	L
PrsMinSize	L
PrsStdSize	L
PrsOptSize	L
PrsMaxSize	L
UseUserPrsSizes	B
ContactFont	A
ContactSize	A
ScreenPassword	A
eMailAddress	T
TableSwtchDelay	I

InputLayouts	
InputFile	A
Layout	A

OutputLayouts	
OutputFile	A
Layout	A
SortDefault	B
DelSort	T

PurchaseStats	
Mnfct Part No	A
Manufacturer	A
Weight	R
Last Cost	R
LastVendor	A
LastPurchDate	D
QtyMTD	I
CostMTD	R
MaxCostMTD	R
MinCostMTD	R
AvgCostMTD	R
QtyYTD	I
CostYTD	R
MaxCostYTD	R
MinCostYTD	R
AvgCostYTD	R
Notes	T
RMACount	I
Description	A
LastCustomer	A
LastSalesPrice	R
MaxPriceMTD	R
MinPriceMTD	R
AvgPriceMTD	R

_EasySelects	
Name	A
EasySelectFile	A
SearchSpec	T
SortSpec	T
AfterProc	T
Info	T
Parent	A
Folder	B
RelateOne	B
RelateMany	B
BeforeProc	T
Access_	A

_Palette	
Icon	P
Name	A
Procedure	A
SortNum	I
Switchable	B
GotoModify	B

_IELayouts	
IEFile	A
Layout	A
Type_	B

_Help	
Topic	A
Subtitle	A
HelpText	T
SortNum	I

_HelpMemos	
UserName	A
HelpTopic	A
Memo	T

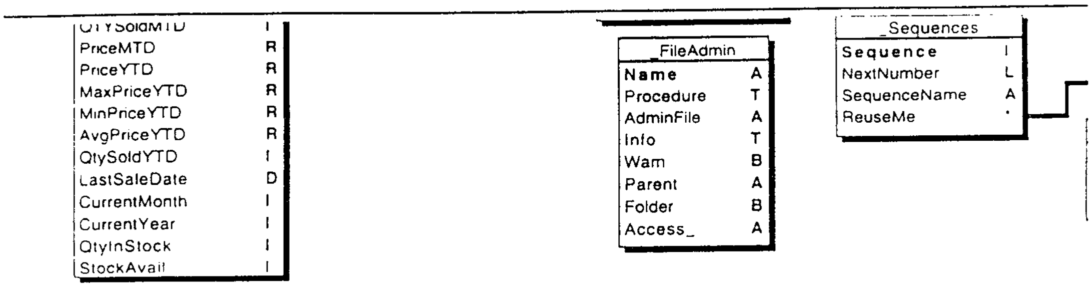
_Keywords	
Word	A
KWFile	A

_Reports	
Name	A
ReportFile	A
Layout	A
SortSpec	T
AfterProc	T
Info	T
SearchSpec	T
Parent	A
Folder	B
BreakLevel	A
Accumulate_	T
RelateOne	B
RelateMany	B
BeforeProc	T
Access_	A

Name
Text
TextFor
TextSiz
Header
HeaderI
Header:
Footer
FooterF
FooterS
SkipFirs
TextSty
Header
FooterS
Header
FooterA
LetterAl
MergeF
Letter_

_Glc
Name
Text
Functic

Structure for Mega3.5.4

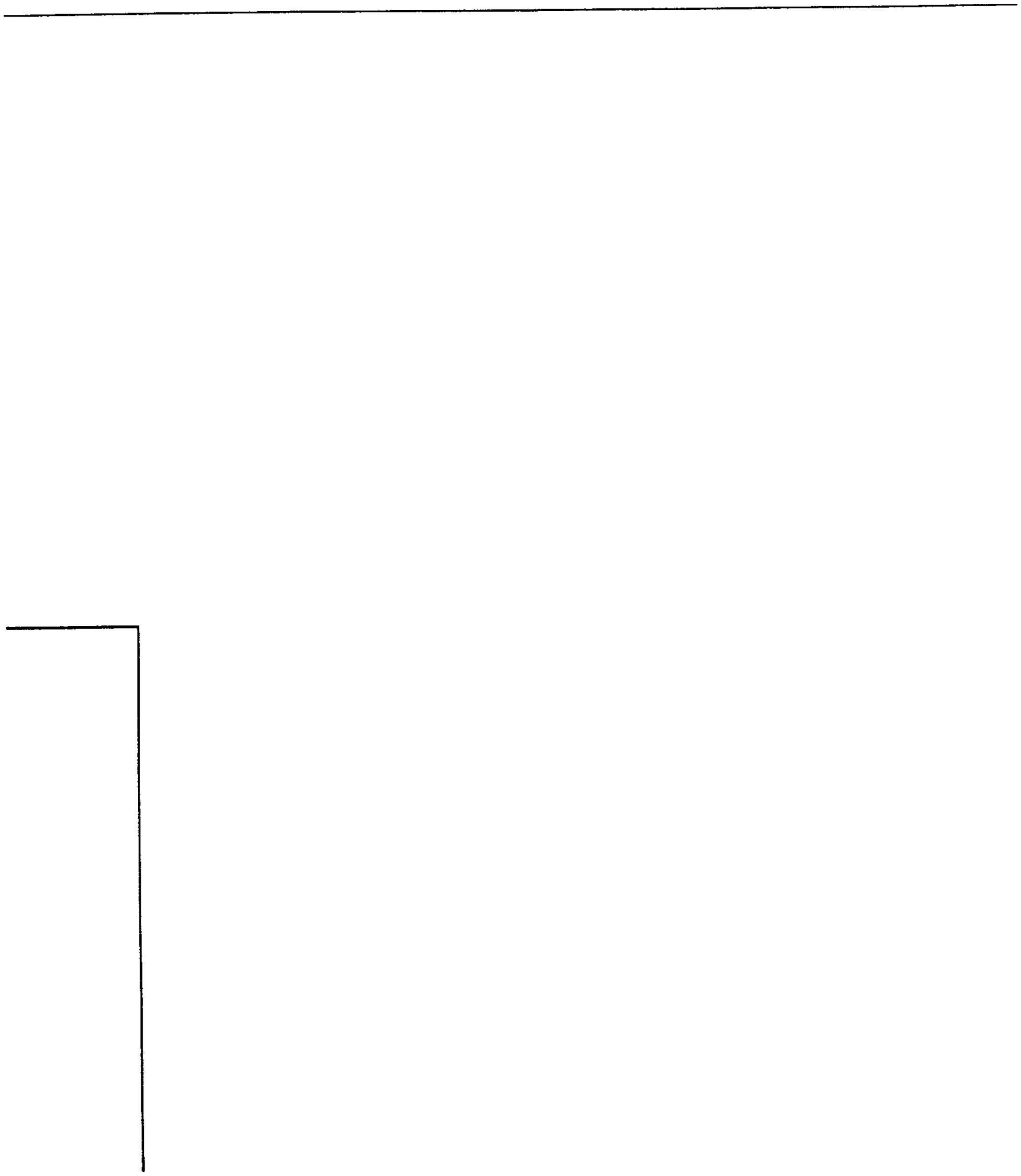


QTYSoldMTD	I
PriceMTD	R
PriceYTD	R
MaxPriceYTD	R
MinPriceYTD	R
AvgPriceYTD	R
QtySoldYTD	I
LastSaleDate	D
CurrentMonth	I
CurrentYear	I
QtyInStock	I
StockAvail	I

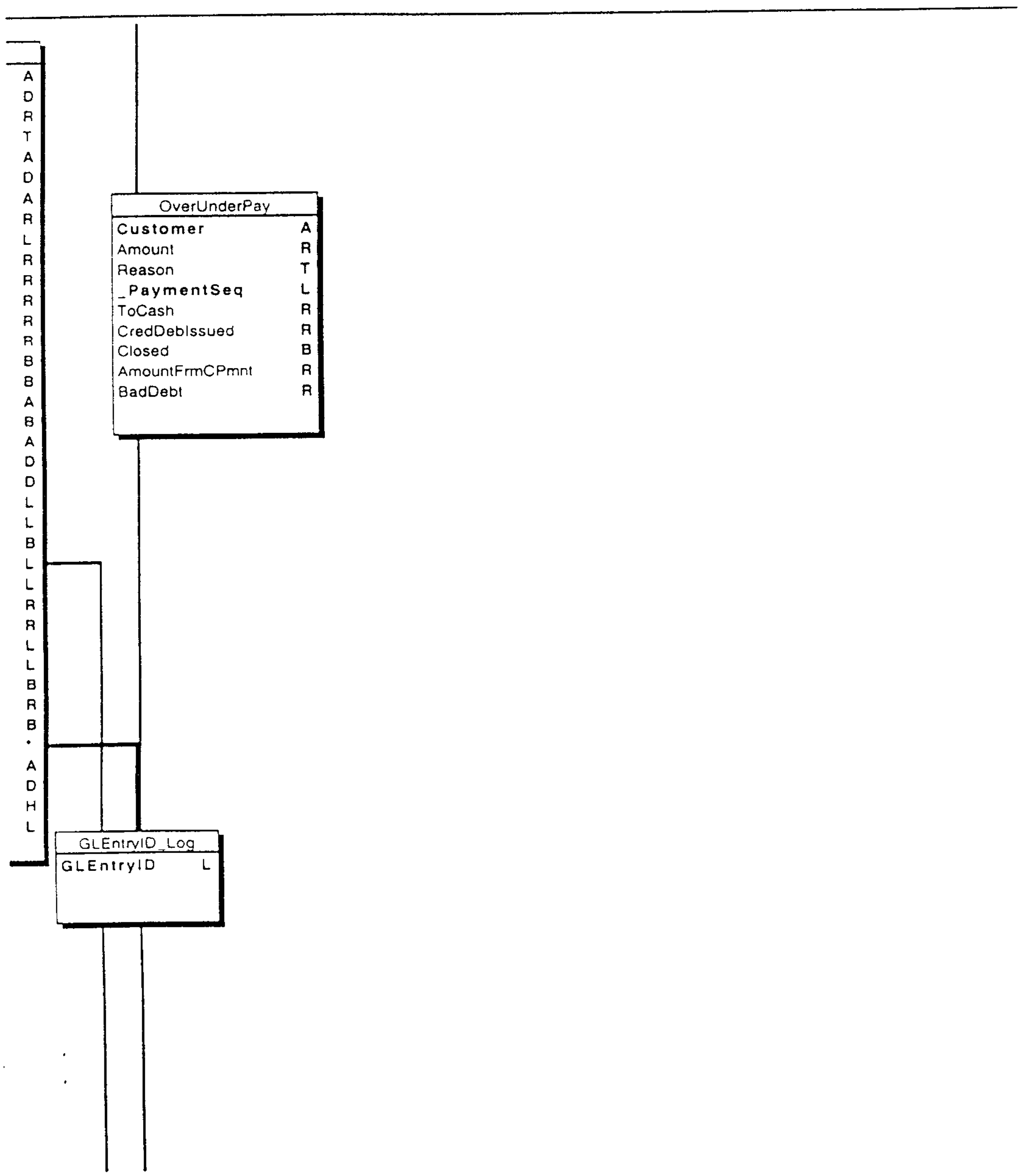
_FileAdmin	
Name	A
Procedure	T
AdminFile	A
Info	T
Warn	B
Parent	A
Folder	B
Access_	A

_Sequences	
Sequence	I
NextNumber	L
SequenceName	A
ReuseMe	•

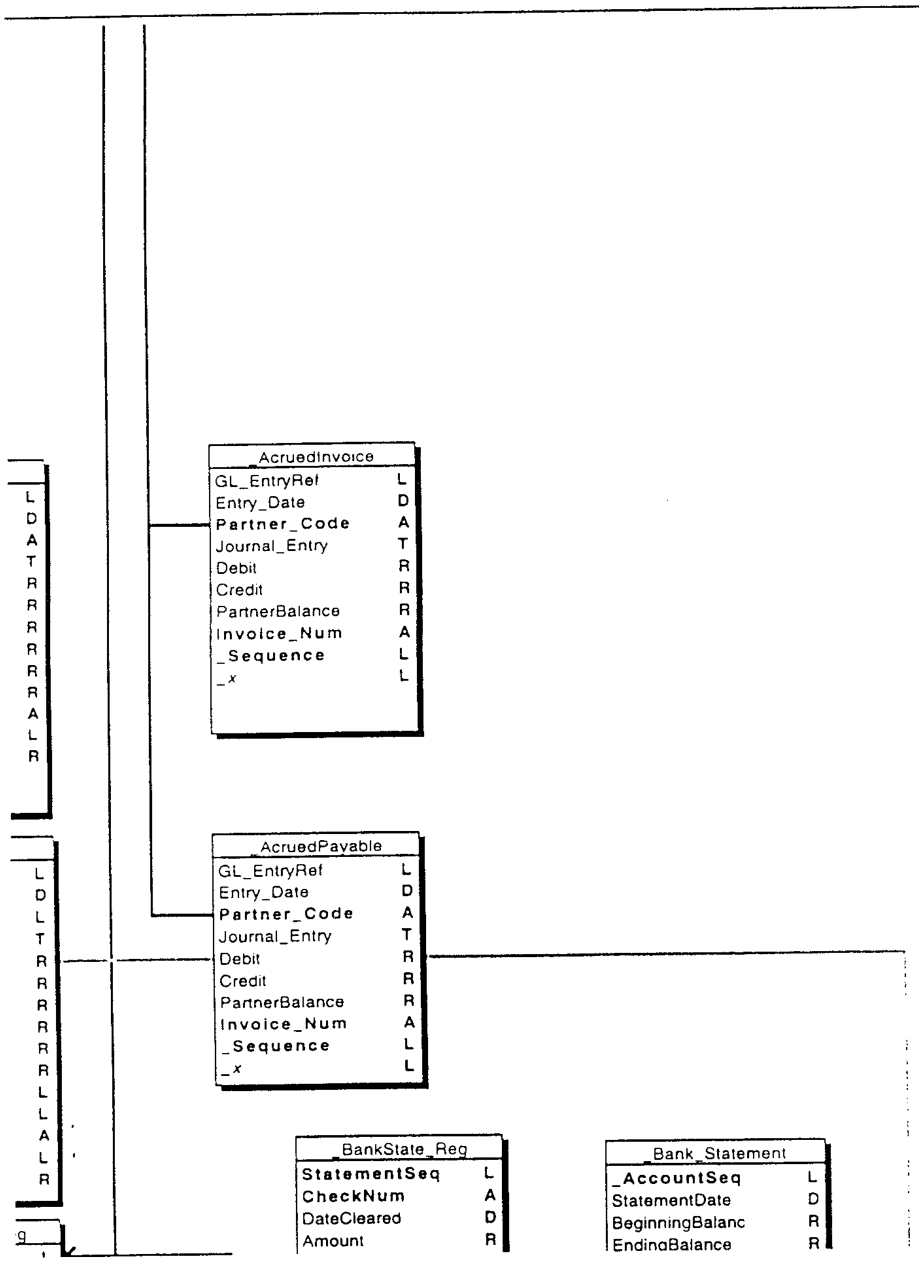
Structure for Mega3.5.4



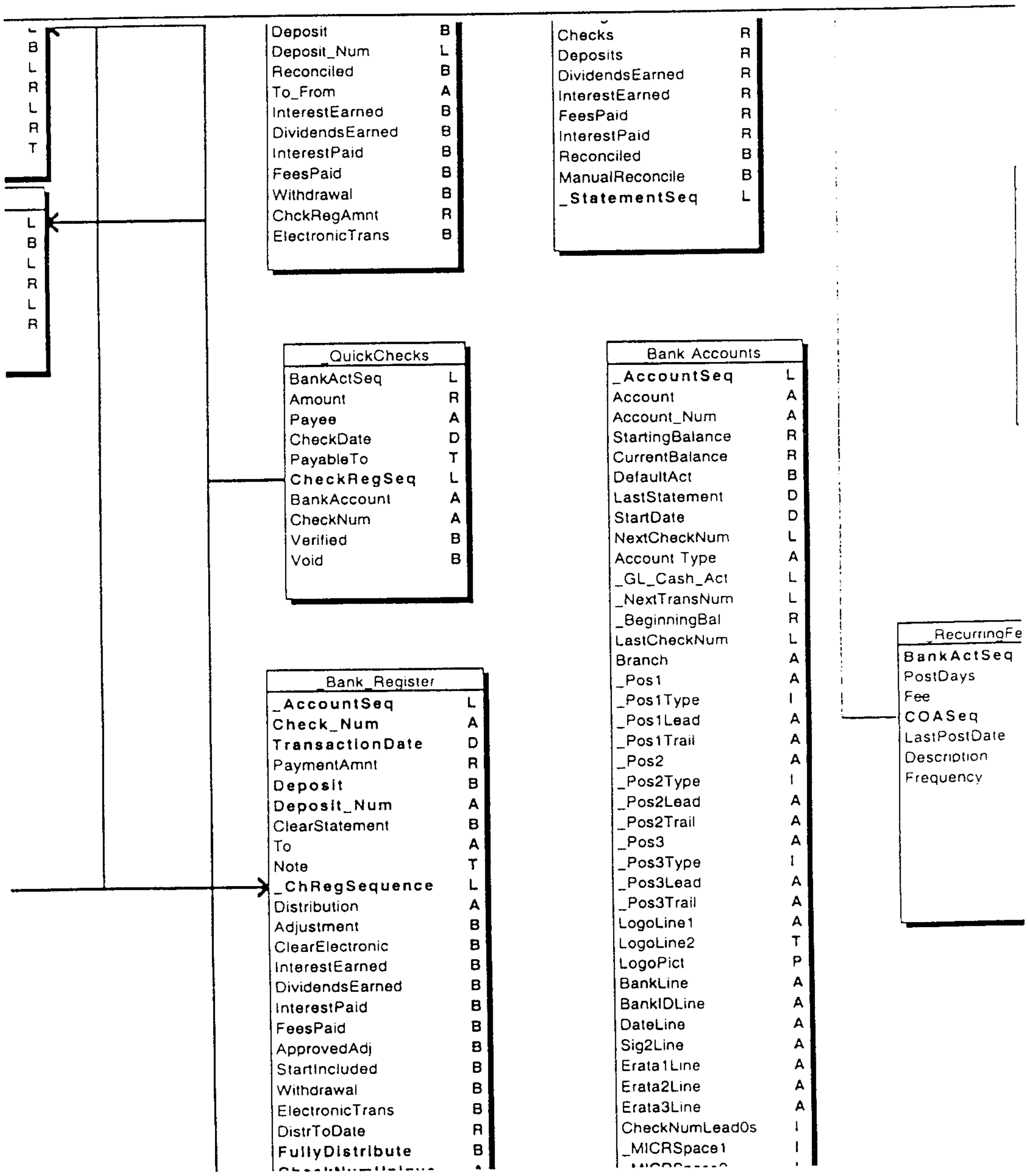
Structure for Mega3.5.4



Structure for Mega3.5.4



Structure for Mega3.5.4



Structure for Mega3.5.4

CheckNumUnique	A
Balance	R
DepositAmnt	R
TransactionTime	H
DepositDate	D
DepositTime	H
DepVerifyDate	D
DepVerifyTime	H
PayableTo	T
CashRecptSeq	L
CashDlsbSeq	L

_MICRSpace2	I
_MICRSpace3	I
UsePictCheck	B
AmuntCharPad	A
Sig1Line	A
DepLogo	T
_Pos4	A
_Pos4Type	I
_Pos4Lead	A
_Pos4Trail	A
_Pos5	A
_Pos5Type	I
_Pos5Lead	A
_Pos5Trail	A
_MICRSpace4	I
_MICRSpace5	I
NextDepNum	L
DepNumLead0s	I
PrintDepHor	B

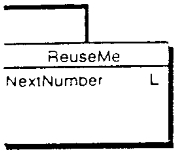
Structure for Mega3.5.4

_Letters	
	A
	T
t	A
e	R
	T
Font	A
Size	R
	T
ont	A
ize	R
tPage	B
le	I
Style	I
tyle	I
Alignment	A
lignment	A
ignment	A
le	A
	P

ssaries	
	A
	T
n	B

_BadVendors	
xx	B
xxx	B
xxxx	B
xxxxx	B
xxxxxxxxx	B
xxxxxxx	B

Structure for Mega3.5.4



Structure for Mega3.5.4

Structure for Mega3.5.4

Structure for Mega3.5.4

Structure for Mega3.5.4

_GLBankRg_Split	
BankRegSequence	L
GL_AccountSeq	L
Debit	R
Credit	R
Sort_	I
ActType	A
GL_Account	A
Editable	B
CashRcptSeq	L
Explanation	A
CashDisbSeq	L

es
L
A
R
L
D
A
A

What is claimed is:

1. A method of business-to-business transaction processing using a database and a database management system, comprising:

receiving user demand information electronically;

at least partially in response to receiving the user demand information electronically, automatically storing an order record in the database and maintaining the order record in the database throughout a life cycle of the order; and

during the life cycle of the order, multiple users each accessing the order record and processing the order to accomplish a respective one of multiple business functions, and creating records related to the order.

2. The method of Claim 1, wherein the life cycle of the order includes an expected period for at least one of reversal, service, and parts order

3. The method of Claim 2, wherein reversal includes customer returns and correction of improperly fulfilled or mistaken orders.

4. The method of Claim 1, or Claim 2 or Claim 3, further comprising

providing within the database management system at least one of a table switch function and a related table switch function, wherein

the table switch function enables a user to freely view records of any of various tables except as otherwise prohibited by access authority defined by a supervisory user;

the related table switch function enables a user to freely view records of any of various tables related to a selected record, except as otherwise prohibited by access authority defined by a supervisory user.

5. The method of Claim 4, wherein the related switch function is used to display information to a user via the Web.

6. The method of any of the preceding claims, further comprising defining automated workflow processes for a plurality of business function using the database and the database management system, wherein the workflow processes constrain user inputs and actions but allow use of at least one of the table switch function and the related table switch function.

7. The method of Claim 6, further comprising allowing a user with proper authority to access all tables containing transaction-relevant information

8. The method of any of the preceding claims, further comprising providing a central table supporting multiple business functions, whereby changes made by one user performing one business function can be viewed immediately thereafter by other users performing other business functions

9. The method of Claim 8, wherein the central table is an item detail table.

10. The method of Claim 8, further comprising:

users, in response to business events, entering information affecting financials into the database; and

posting general ledger entries in the database such that latency between entry of said information and posting of a corresponding general ledger entry is either negligible or not greater than a predetermined small time period.

11. The method of Claim 10, wherein the predetermined small time period is one day, allowing for the preparation of substantially real-time financial reports.

12. The method of any of the preceding claims, further comprising processing information stored within the database to provide functionality within a majority of the following categories: enterprise resource planning, sales force automation, supply chain management, purchasing automation and electronic commerce.

13. The method of any of the preceding claims, further comprising:

in response to receiving the user demand information electronically, automatically storing a quote record in the database;

receiving further user demand information electronically;

in response to receiving the further user demand information electronically, automatically converting a quote record to an order record

14 The method of any of the preceding claims, wherein the database management system is Web-enabled, and at least one of said user demand information and said further user demand information is received via the Web

15. The method of any of the preceding claims, further comprising a user retrieving a quote record that has not yet been converted into an order record, modifying the quote record, and updating the quote record

16. The method of any of the preceding claims, further comprising a user retrieving an order or quote record, duplicating the order record as a quote record, modifying the quote record, and saving the quote record as a new quote record.

17. The method of any of the preceding claims further comprising allowing a supervisor to view quotes created by subordinates of that supervisor:

18. The method of any of the preceding claims, further comprising, for each of a plurality of users, storing within the database management system a plurality of favorite quotes of that user for ready duplication.

19. The method of Claim 18, further comprising allowing a user to change that user's favorite quotes and effecting the changes on-the-fly in real time.

20. The method of any of the preceding claims, further comprising eliciting user demand information by displaying to a user products approved for purchase by that user.

21. The method of any of the preceding claims, further comprising eliciting user demand information by displaying to a user a summary of products frequently purchased or recently purchased by that user

22. The method of any of the preceding claims wherein the user demand information includes at least one of installation instructions and shipping instructions.

23. The method of Claim 22, further comprising automatically enforcing dependencies based on at least one of ship group and installation group

24. The method of any of the preceding claims, further comprising

automatically identifying quote records less likely to be converted into order records; and

communicating with users so as to increase the liklihood of the quote records being converted into order records.

25. The method of Claim 24, wherein communicating with users comprises automatically communicating with users via the Web.

26. The method of Claim 25, further comprising automatically communicating a promotional offer.

27. The method of any of the preceding claims, further comprising processing via the Web a post-sale transaction relating to a product previously sold, comprising the steps of:

a user communicating a request via the Web, causing a related record related to an existing order record to be stored; and

processing the request using an automated workflow process.

28. The method of Claim 27, wherein the post-sale transaction is one of the following: return, service, and parts order.

29. The method of any of the preceding claims, wherein the existence of an open return request is automatically taken into account within a plurality of workflow processes.

30. The method of any of the preceding claims, further comprising automatically approving a return request in accordance with stored criteria and communicating approval to a user electronically.

31. The method of Claim 30, wherein the stored criteria are modified by a user having authority to do so.

32. The method of any of the previous claims, further comprising electronically communicating status information to a user.

33. The method of Claim 32, wherein the status information pertains to an order.

34. The method of Claim 32, wherein the status information is communicated upon receiving an electronic request at the time of request.

35. The method of Claim 32, wherein the status information is communicated upon the occurrence of a status change based upon a previous request.

36. The method of Claim 32, wherein the status information pertains to a post-sale transaction request.

37. The method of Claim 32 wherein the status information is detailed status information concerning payment or non-payment.

38. The method of any of the preceding claims, further comprising:

automatically classifying records of a given type into multiple classifications for workflow processing;

one or more users interacting with the relational database system to take a prescribed action with respect to multiple records having a particular classification.

39 The method of Claim 38, wherein the records of a given type are classified into multiple classifications based on experiential criteria.

40. The method of Claim 38, wherein a record may belong to a plurality of categories, the method further comprising sorting records in accordance with a hierarchy of categories such that a record belong to both a category higher in the hierarchy and a category lower in the hierarchy is sorted into a group of records belonging to the higher category.

41. The method of Claim 40, further comprising a user rearranging classifications within a hierarchy to effect a business purpose.

42. The method of Claim 38, further comprising the relational database system not allowing the one or more users to take at least some actions other than the prescribed action with respect to the records.

43. The method of Claim 42, further comprising a user with requisite authority to take an action not allowed for other users not having the requisite authority.

44. The method of Claim 38, further comprising:

a user interacting with the relational database system to change information within a record; and

automatically reclassifying the record.

45. The method of any one of Claims 26-35 wherein the records of a given type are of one of the following types: customer invoices, vendor invoices, item sold and return merchandise authorization requests

46. The method of Claim 45, further comprising:

classifying item sold records;

forming a group of particular item sold records; and

creating a vendor order including a vendor order item corresponding to the group of particular item sold records and representing one or more units.

47. The method of Claim 46, wherein forming a group comprises grouping and regrouping item sold records as many times as desired

48. The method of Claim 46, wherein each vendor order item is related to at least one item sold record created in response to receiving directly from a user user demand information.

49. The method of Claim 48, wherein an item sold record represents one or more units, and an item detail record related to the item sold record is created for each unit.

50. The method of Claim 49, further comprising:

receiving one or more units of a vendor order item; and

for each unit, changing an item detail record to indicate receipt of that unit.

51. The method of Claim 50, further comprising physically manipulating a unit in accordance with a workflow process defined within the database and changing an item detail record of the unit to reflect the physical manipulation.

52. The method of Claim 51, wherein physically manipulating the unit comprises installing the unit within a larger assembly

53. The method of any of Claims 26-43 wherein classifying comprises identifying critical path items for fulfilling an order.

54. The method of any of Claims 26-44 wherein classifying is performed on the basis of at least a plurality of the following: item, availability, installation instructions, and shipping instructions.

55. The method of any of Claims 26-45 further comprising breaking down items into multiple tiers, each successive tier including component parts for items of a previous tier, and creating a record for each component part.

56. The method of Claim 55, wherein classifying is performed on the basis of availability within multiple tiers.

57. The method of Claim 56, wherein availability information within multiple tiers is obtained via the Web.

58. The method of Claim 56, further comprising communicating availability information to a customer and, if the customer desires, changing at least one of installation instructions and shipping instructions.

59. The method of Claim 55, further comprising ordering component parts from a vendor, receiving the component parts, and assemblying the component parts into an item.

60. The method of Claim 55, further comprising identifying suppliers for the component parts of at least one tier.

61. The method of Claim 60, further comprising ordering an item from a vendor and automatically communicating demand information to at least one other supplier of a component part of the item via the Web

62. The method of Claim 61, wherein communicating via the Web is accomplished by one of Web push methods and Web pull methods.

63. The method of any of the preceding claims further comprising using the data in the database to perform systematic quantitative evaluation of at least one of employee performance, vendor performance and customer performance.

64. The method of Claim 63, further comprising at least one of an employee, a vendor and a customer remotely accessing the database and viewing its own quantitative performance data.

65. The method of Claim 63, wherein said evaluation is based entirely upon data in the database.

66. The method of Claim 63, wherein said evaluation takes into account reversals of orders.

67. The method of any of the preceding claims, wherein the user demand information includes, at least implicitly, vendor identification information, further comprising automatically transmitting corresponding order information to a designated vendor for fulfillment of the order.

68. The method of Claim 67, further comprising automatically transmitting N-tier order information to multiple corresponding vendors.

69. The method of Claim 1, further comprising:

displaying to a Web user multiple electronic commerce course-of-dealing options including at least one option relating to products and at least one option relating to payments;

the Web user setting at least one electronic commerce course-of-dealing option in accordance with a choice of the user; and

the electronic commerce system effectuating the choice of the Web user for each of multiple subsequent electronic commerce transactions.

70. The method of Claim 69, further comprising effectuating the choice of the Web user on-the-fly in real time.

71. The method of Claim 69, wherein displaying comprises displaying a multiplicity of electronic commerce course-of-dealing options in tabular form.

72. The method of Claim 69, wherein course-of-dealing information is read during transaction processing of an electronic commerce transaction.

73. The method of Claim 69, further comprising:

setting authorities of multiple Web users; and

allowing a Web user to set an electronic commerce course-of-dealing option only if the Web user is authorized to do so.

74. The method of Claim 73, further comprising effectuating the settings on-the-fly in real time.

75. The method of any of claims 61-64, wherein a second, working-level electronic commerce course-of-dealing option relates to the authority of a Web user to perform a predetermined action authorized in accordance with a first, enterprise-level electronic commerce course-of-dealing option.

76. The method of any of the foregoing claims, further comprising making remotely accessible to a user status information pertaining to each of a majority of the following product life cycle stages: purchasing, receiving, shipping, installation/assembly, billing, and returns/service.

77. The method of any of the foregoing claims, further comprising a user executing a dynamic workflow process not explicitly provided for.

78. The method of any of the foregoing claims, further comprising an external user remotely setting or changing authority of one or more users.

79. The method of Claim 78, further comprising the system immediately effecting the changes in authority.

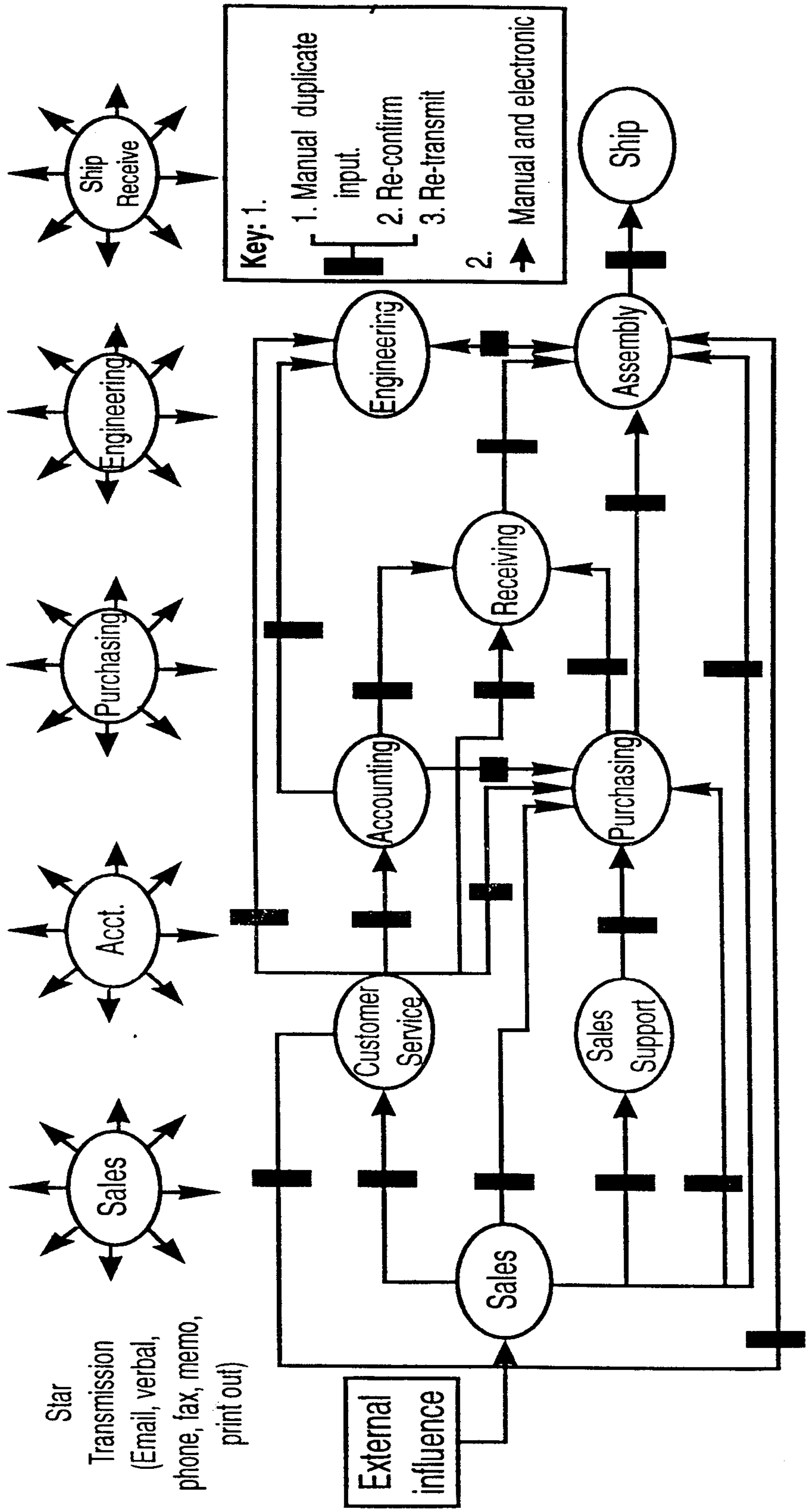
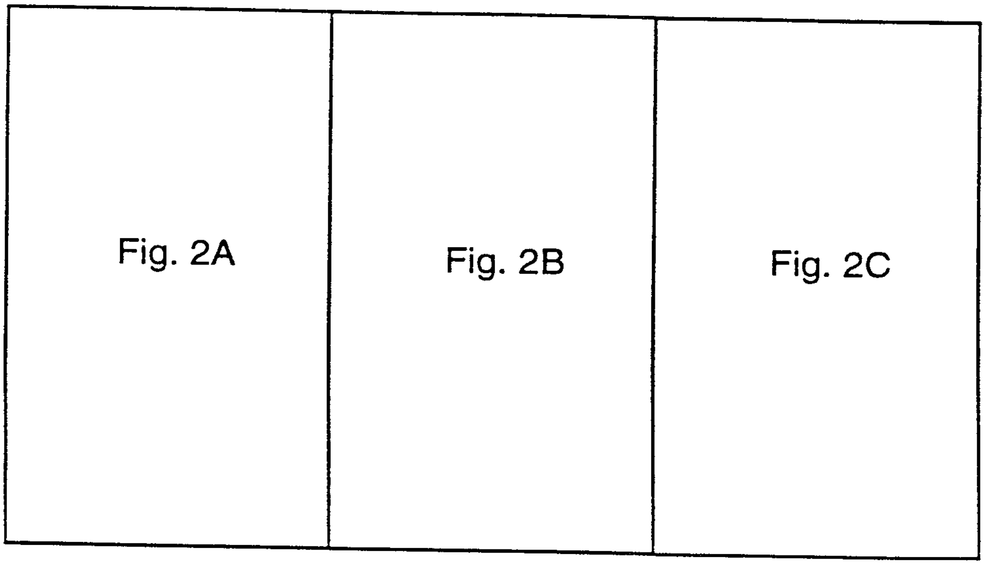

Star
Transmission
(Email, verbal,
phone, fax, memo,
print out)
Sales
Acct.
Purchasing
Engineering
Ship
Receive
Key: 1.
1. Manual duplicate
input.
2. Re-confirm
3. Re-transmit
2.
Manual and electronic
External
influence
Sales
Customer
Service
Sales
Support
Accounting
Purchasing
Receiving
Engineering
Assembly
Ship

FIG.1

Fig. 2



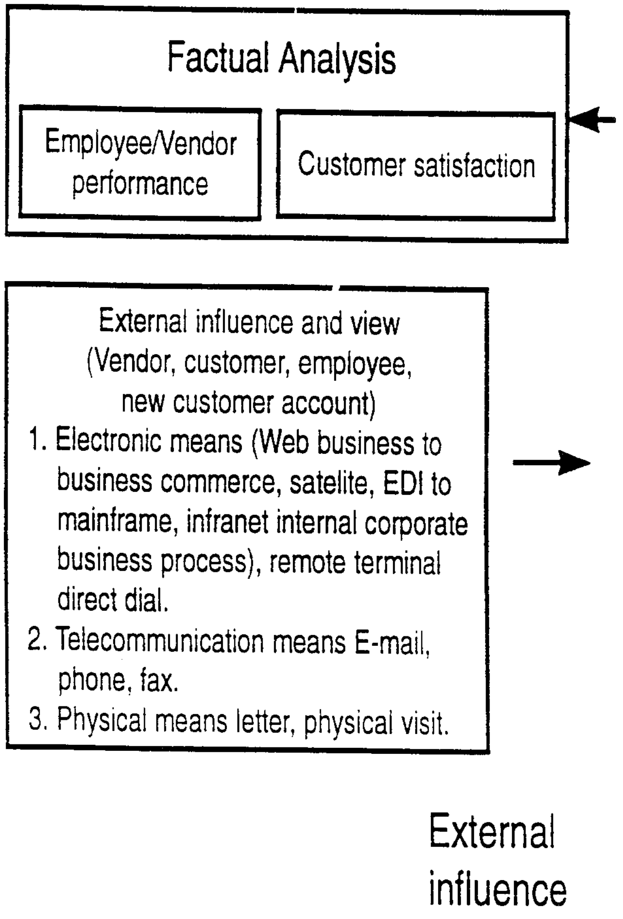

Factual Analysis
Employee/Vendor performance
Customer satisfaction
External influence and view
(Vendor, customer, employee, new customer account)
1. Electronic means (Web business to business commerce, satelite, EDI to mainframe, infranet internal corporate business process), remote terminal direct dial.
2. Telecommunication means E-mail, phone, fax.
3. Physical means letter, physical visit.
External influence

FIG. 2A

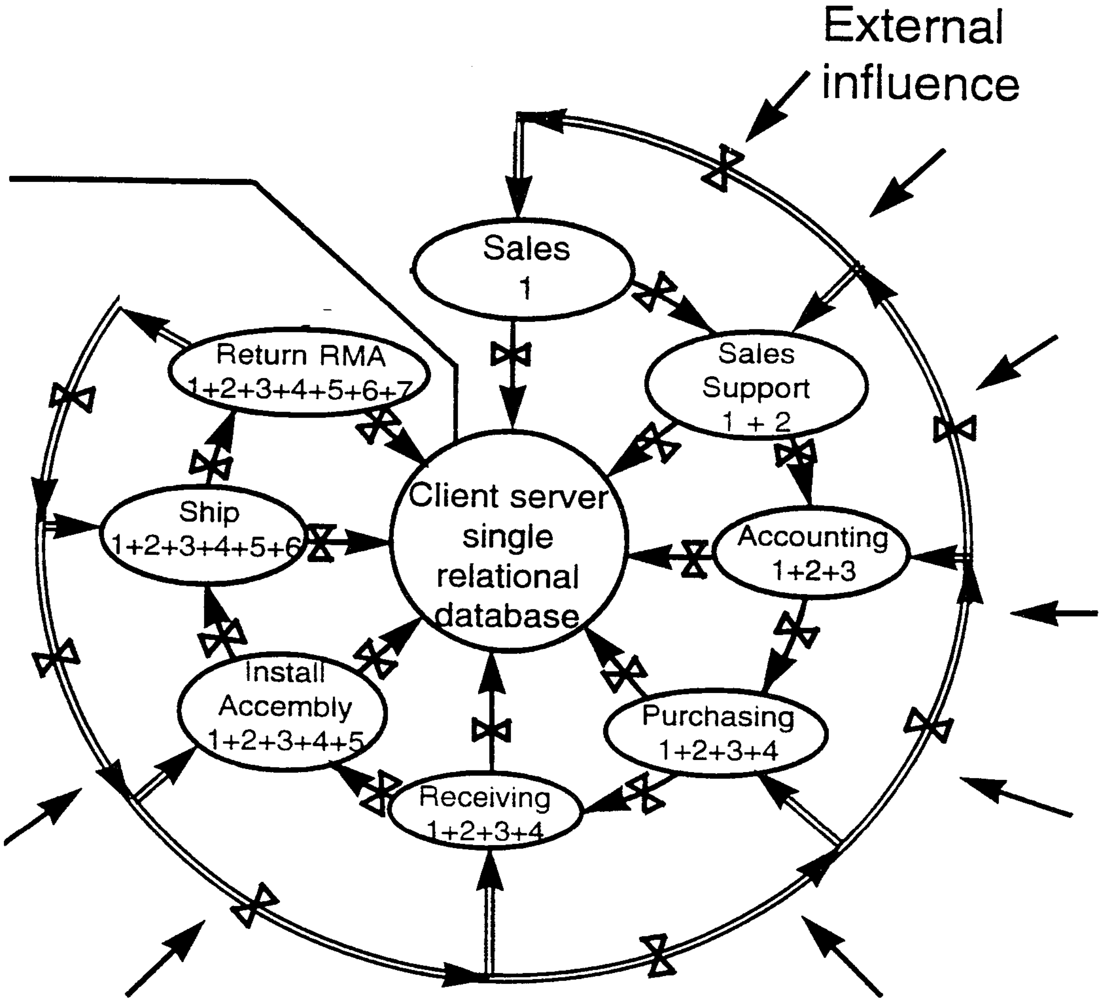

External influence
Sales
1
Sales Support
1 + 2
Accounting
1+2+3
Purchasing
1+2+3+4
Receiving
1+2+3+4
Install Accembly
1+2+3+4+5
Ship
1+2+3+4+5+6
Return RMA
1+2+3+4+5+6+7
Client server single relational database

FIG. 2B

⧗ 1. Secured and authority check.
2. Best practice, possible outcome, expected input parameters affecting downstream.
3. Process is reversible until posted.
4. Track discrepancy and allow improvement from feedback.
5. Trigger one event to allow other event happens.

External influence

Key
——→ Electronic, non-manual original process
━━→ Electronic, non-manual reversible process

Fig. 2C

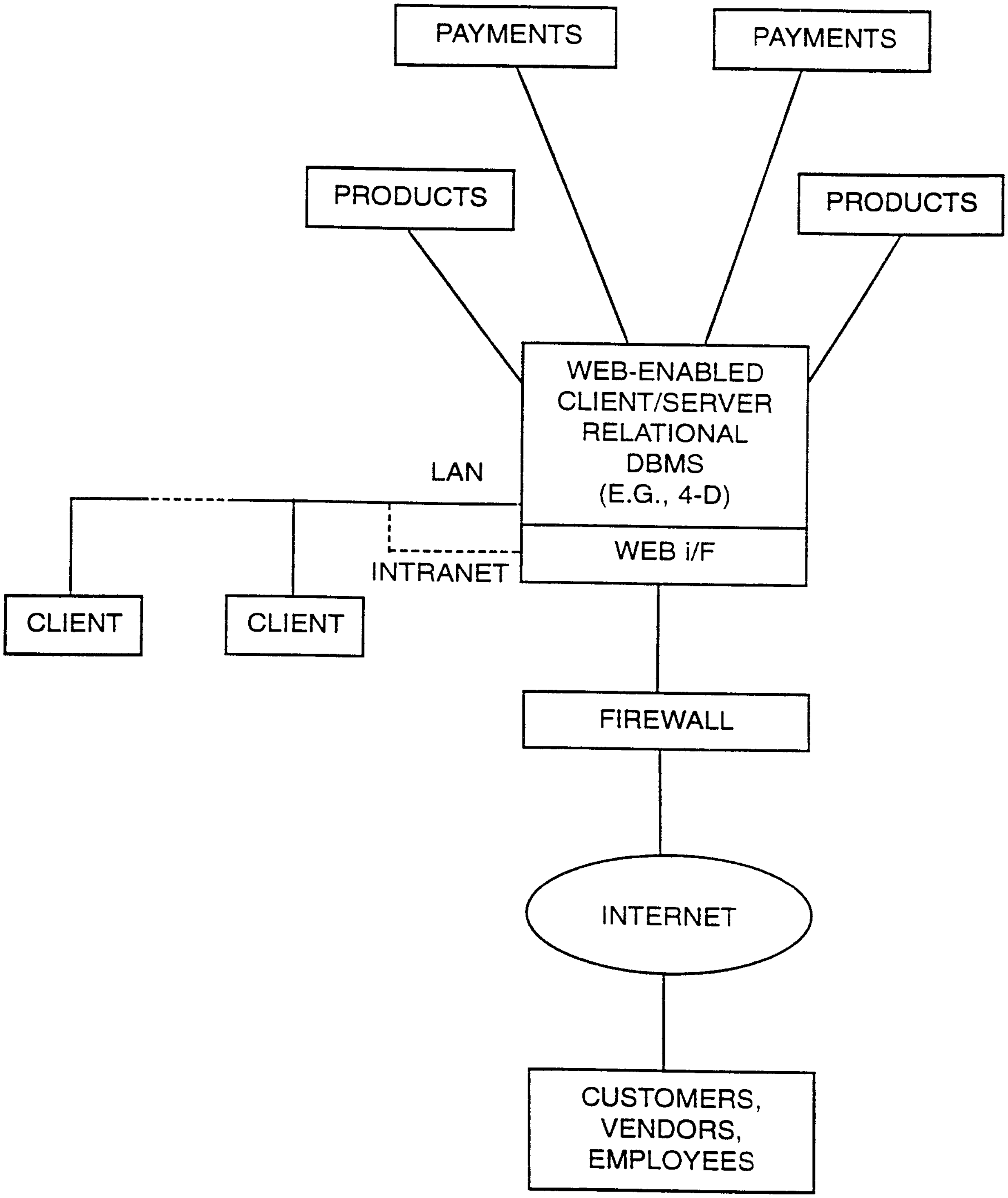
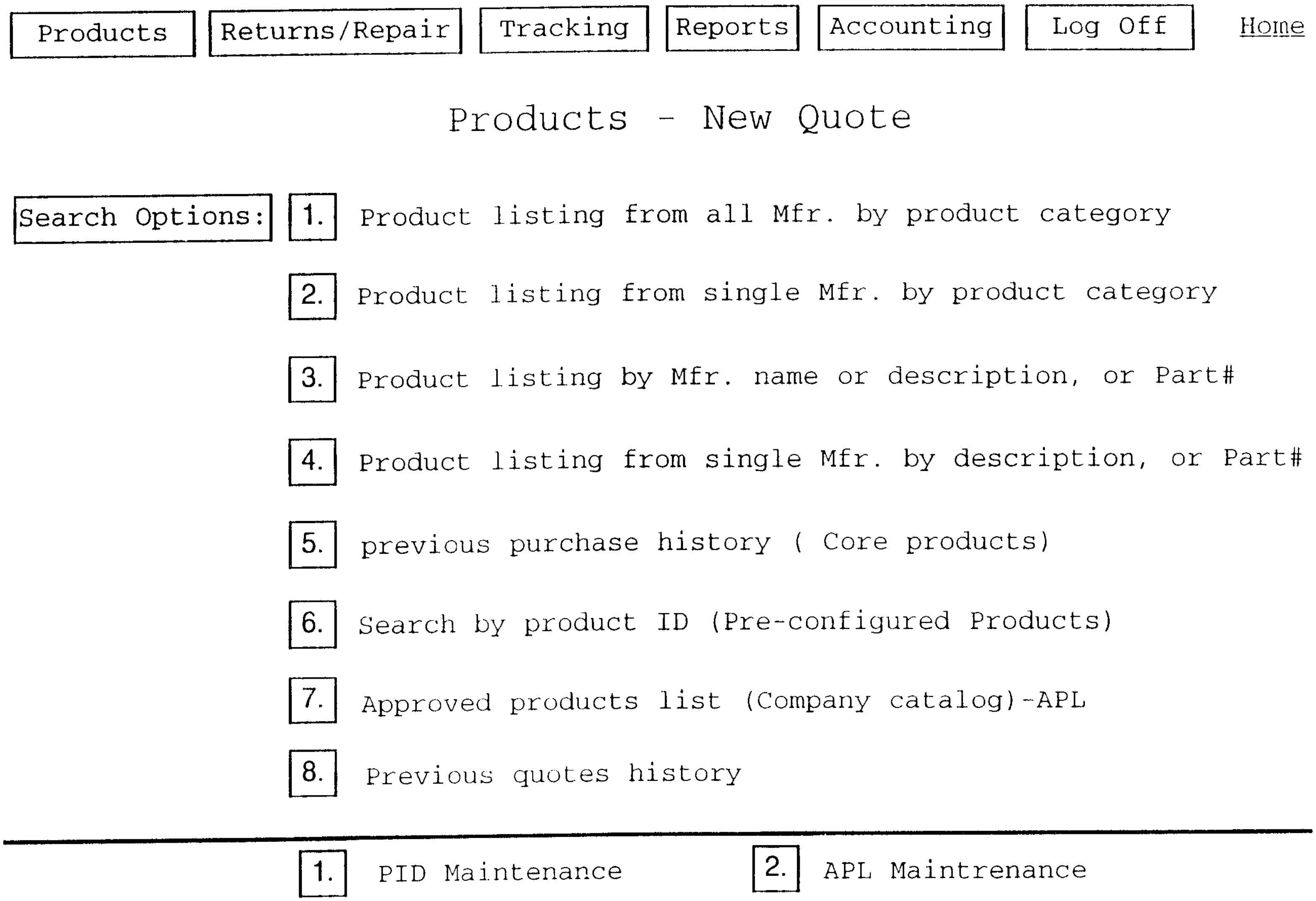

PAYMENTS
PAYMENTS
PRODUCTS
PRODUCTS
WEB-ENABLED CLIENT/SERVER RELATIONAL DBMS (E.G., 4-D)
WEB i/F
LAN
INTRANET
CLIENT
CLIENT
FIREWALL
INTERNET
CUSTOMERS, VENDORS, EMPLOYEES

FIG.3



Products - New Quote

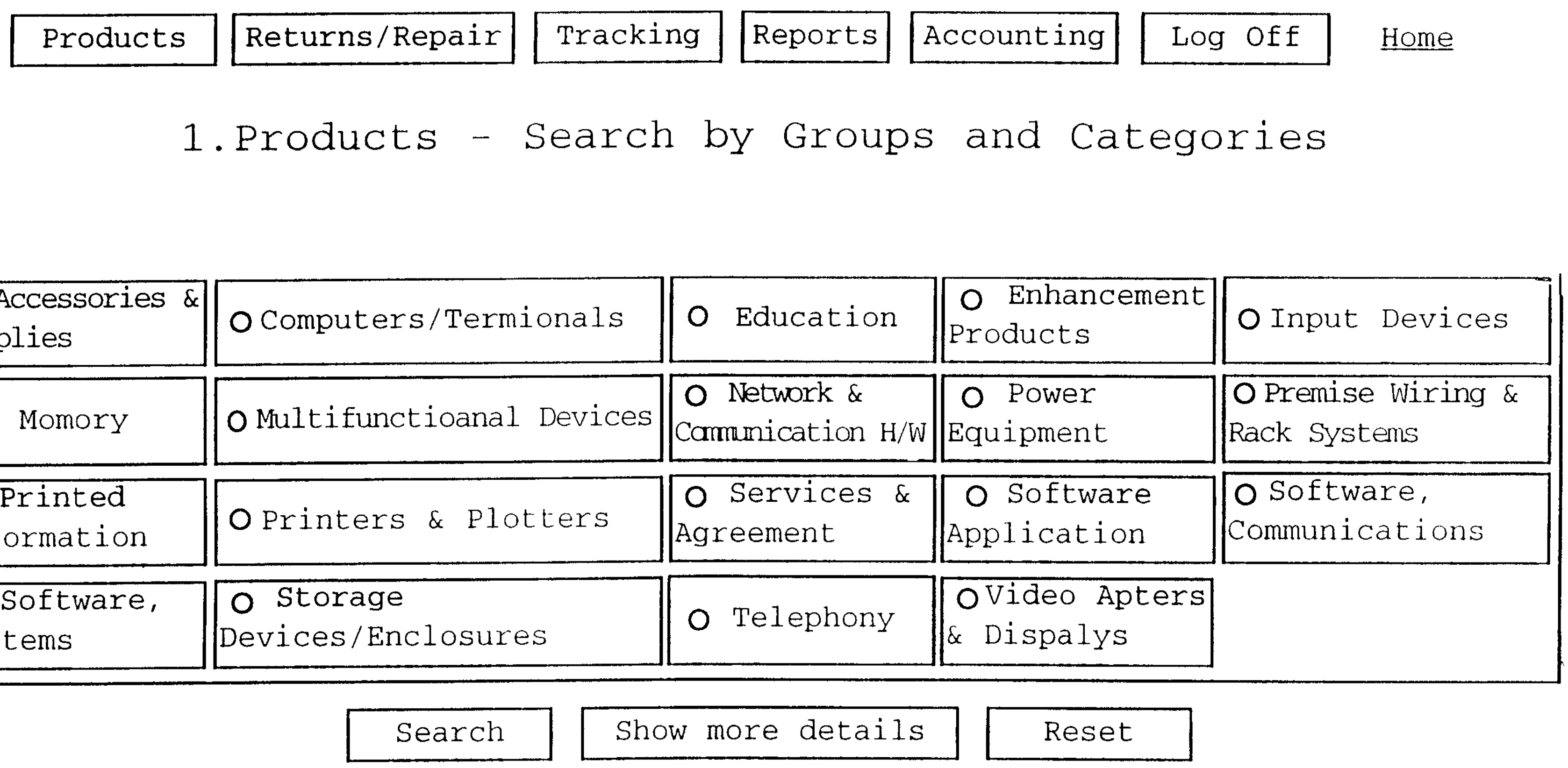
Search Options:

1. Product listing from all Mfr. by product category
2. Product listing from single Mfr. by product category
3. Product listing by Mfr. name or description, or Part#
4. Product listing from single Mfr. by description, or Part#
5. previous purchase history (Core products)
6. Search by product ID (Pre-configured Products)
7. Approved products list (Company catalog)-APL
8. Previous quotes history

1. PID Maintenance

2. APL Maintrenance

FIG. 4



1.Products - Search by Groups and Categories

○ Accessories & Supplies	○ Computers/Termionals	○ Education	○ Enhancement Products	○ Input Devices
○ Momory	○ Multifunctioanal Devices	○ Network & Communication H/W	○ Power Equipment	○ Premise Wiring & Rack Systems
○ Printed Information	○ Printers & Plotters	○ Services & Agreement	○ Software Application	○ Software, Communications
○ Software, Systems	○ Storage Devices/Enclosures	○ Telephony	○ Video Apters & Dispalys	

FIG. 5

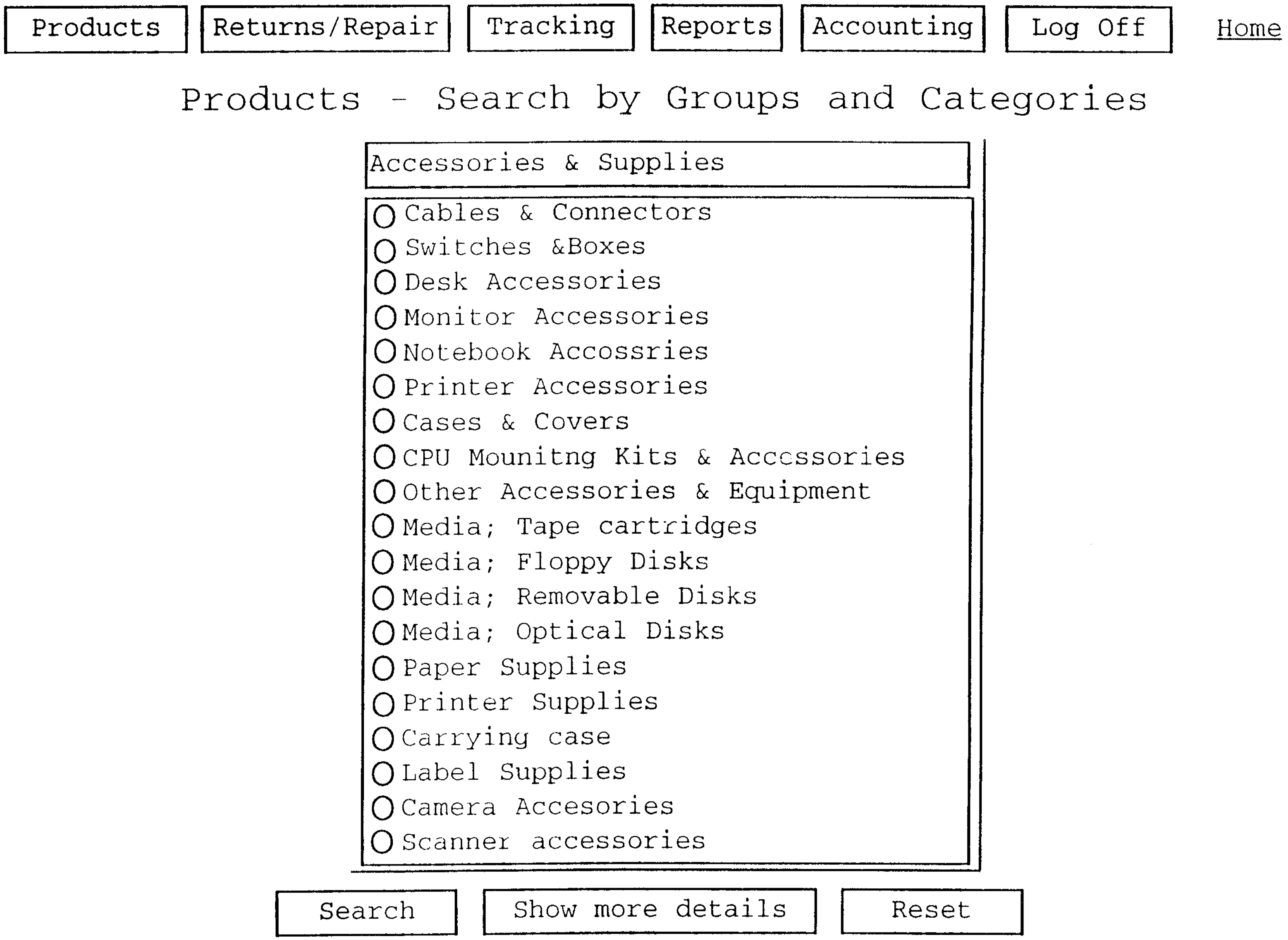
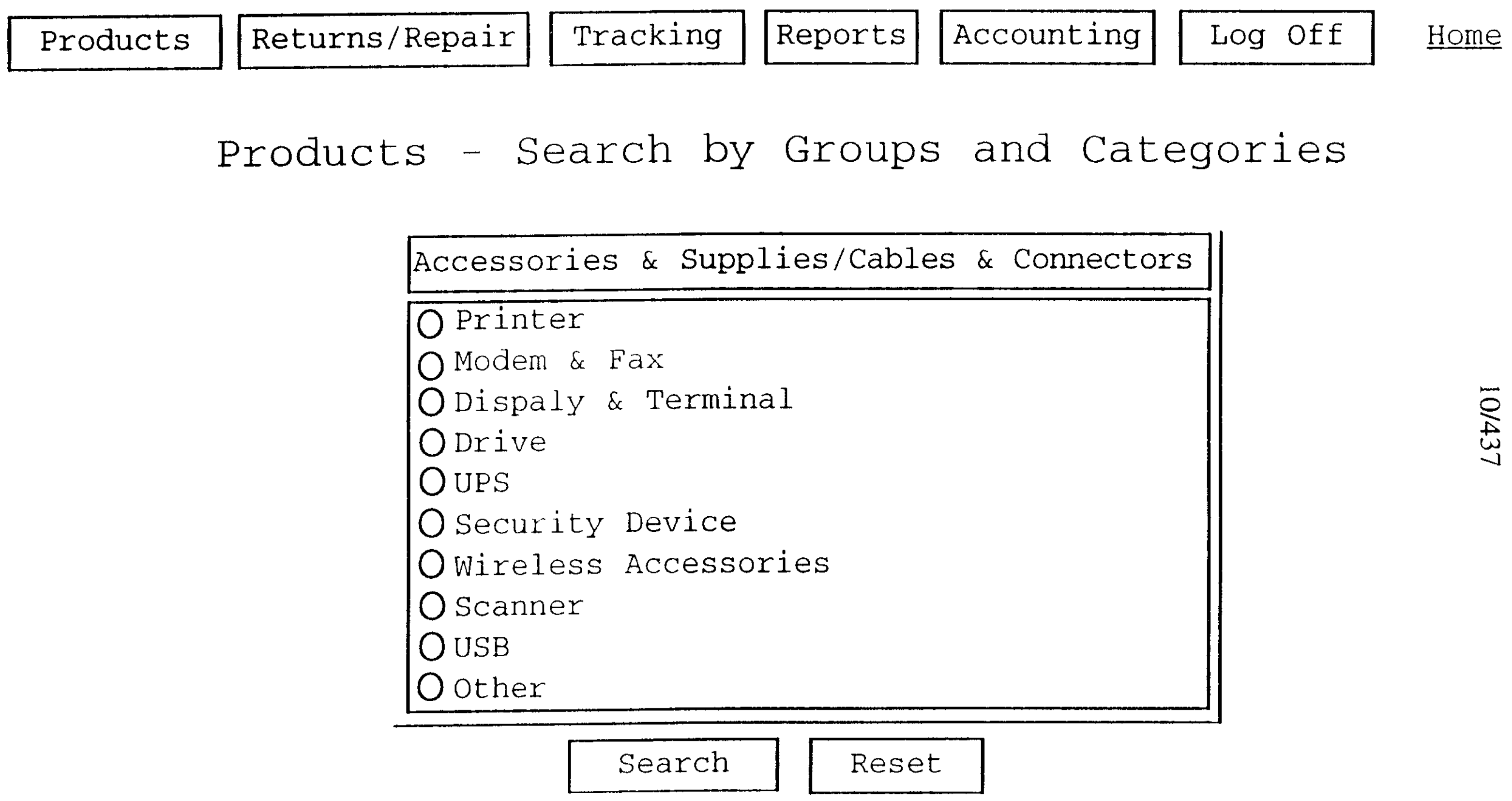

Products
Returns/Repair
Tracking
Reports
Accounting
Log Off
Home
Products - Search by Groups and Categories
Accessories & Supplies
○ Cables & Connectors
○ Switches &Boxes
○ Desk Accessories
○ Monitor Accessories
○ Notebook Accossries
○ Printer Accessories
○ Cases & Covers
○ CPU Mounitng Kits & Acccssories
○ Other Accessories & Equipment
○ Media; Tape cartridges
○ Media; Floppy Disks
○ Media; Removable Disks
○ Media; Optical Disks
○ Paper Supplies
○ Printer Supplies
○ Carrying case
○ Label Supplies
○ Camera Accesories
○ Scanner accessories
Search
Show more details
Reset

FIG. 6



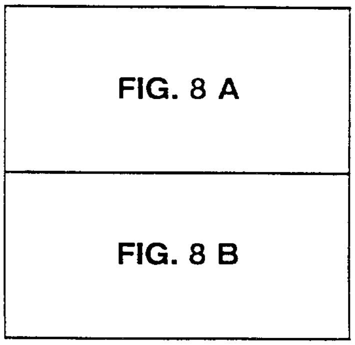
Products - Search by Groups and Categories

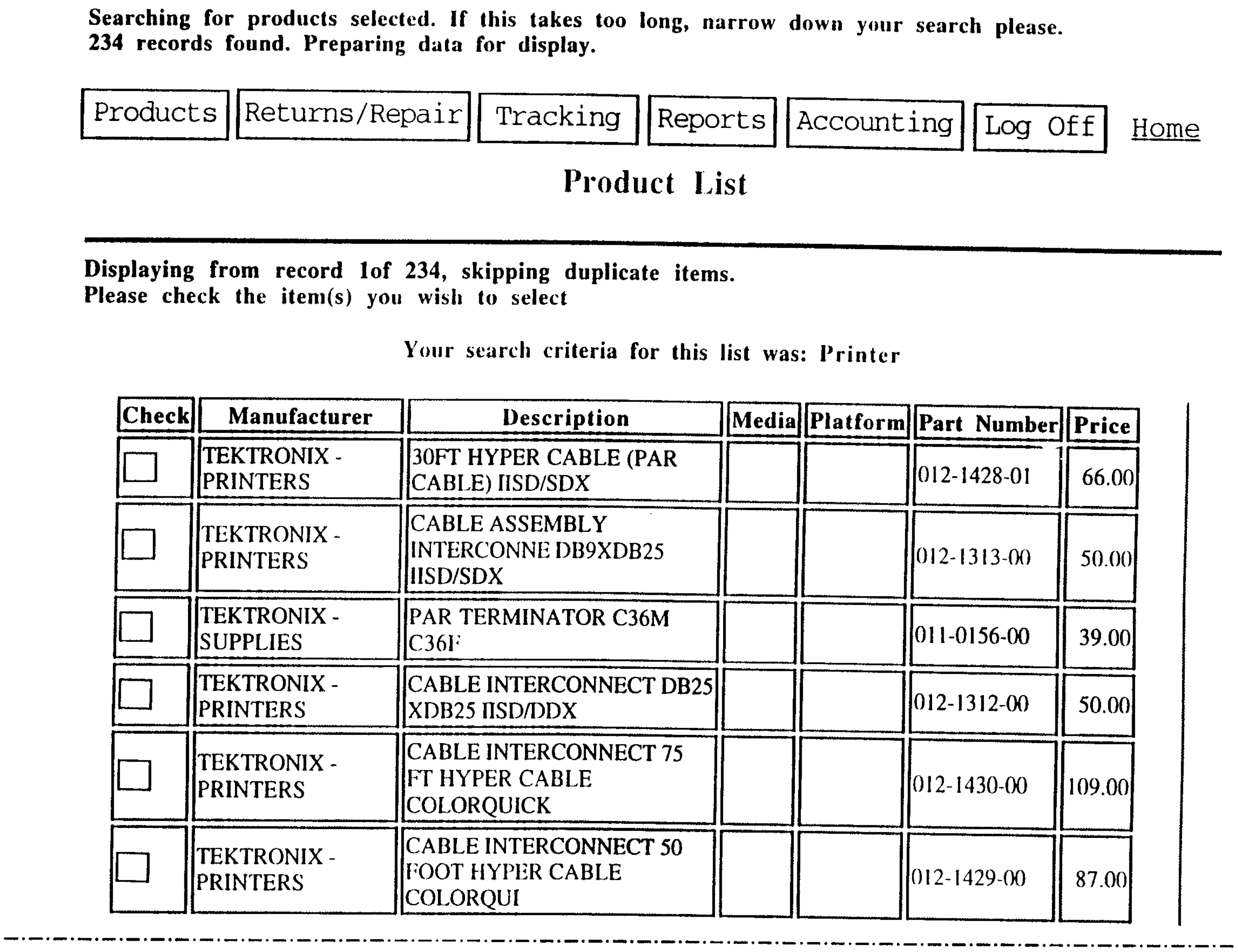
Accessories & Supplies/Cables & Connectors

○ Printer
○ Modem & Fax
○ Dispaly & Terminal
○ Drive
○ UPS
○ Security Device
○ Wireless Accessories
○ Scanner
○ USB
○ Other

FIG. 7

FIG. 8





Searching for products selected. If this takes too long, narrow down your search please.
234 records found. Preparing data for display.

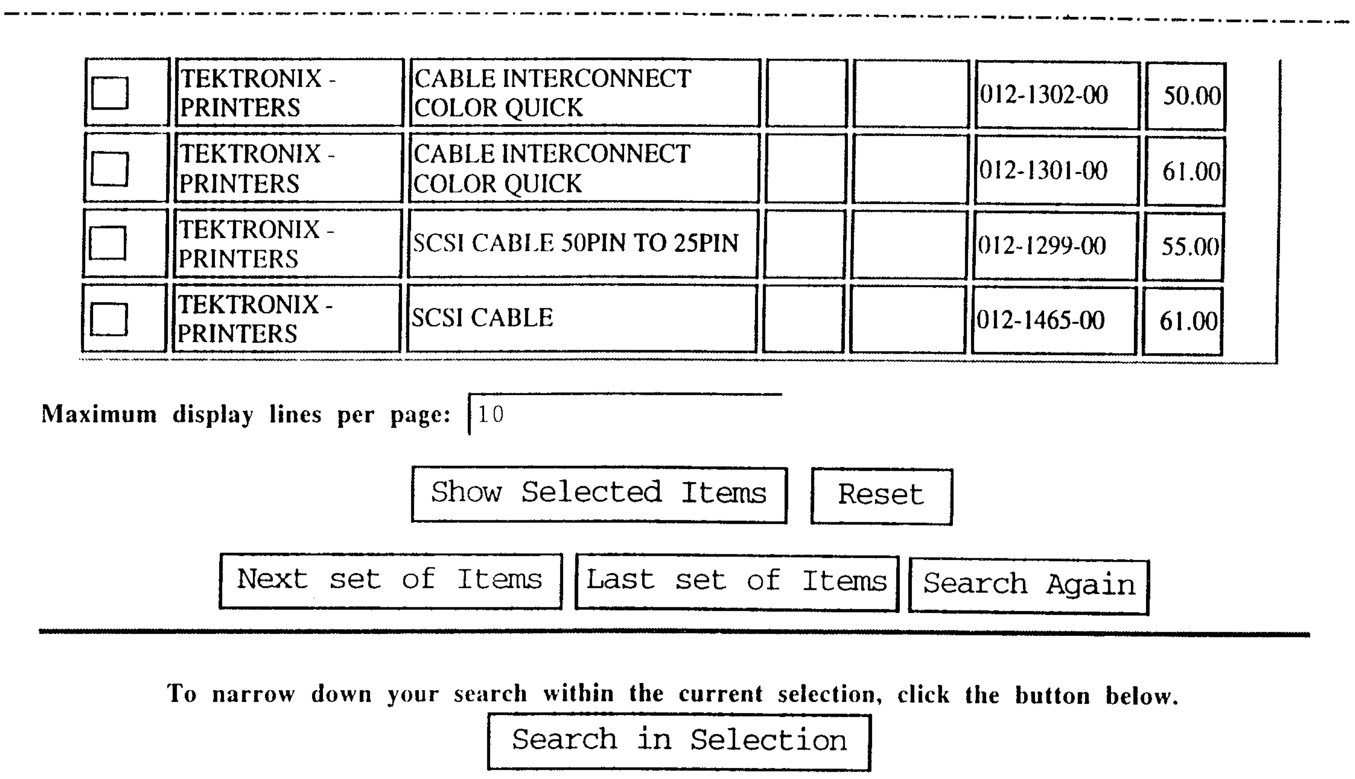
Product List

Displaying from record 1of 234, skipping duplicate items.
Please check the item(s) you wish to select

Your search criteria for this list was: Printer

Check	Manufacturer	Description	Media	Platform	Part Number	Price
☐	TEKTRONIX - PRINTERS	30FT HYPER CABLE (PAR CABLE) IISD/SDX			012-1428-01	66.00
☐	TEKTRONIX - PRINTERS	CABLE ASSEMBLY INTERCONNE DB9XDB25 IISD/SDX			012-1313-00	50.00
☐	TEKTRONIX - SUPPLIES	PAR TERMINATOR C36M C36F			011-0156-00	39.00
☐	TEKTRONIX - PRINTERS	CABLE INTERCONNECT DB25 XDB25 IISD/DDX			012-1312-00	50.00
☐	TEKTRONIX - PRINTERS	CABLE INTERCONNECT 75 FT HYPER CABLE COLORQUICK			012-1430-00	109.00
☐	TEKTRONIX - PRINTERS	CABLE INTERCONNECT 50 FOOT HYPER CABLE COLORQUI			012-1429-00	87.00

FIG. 8 A

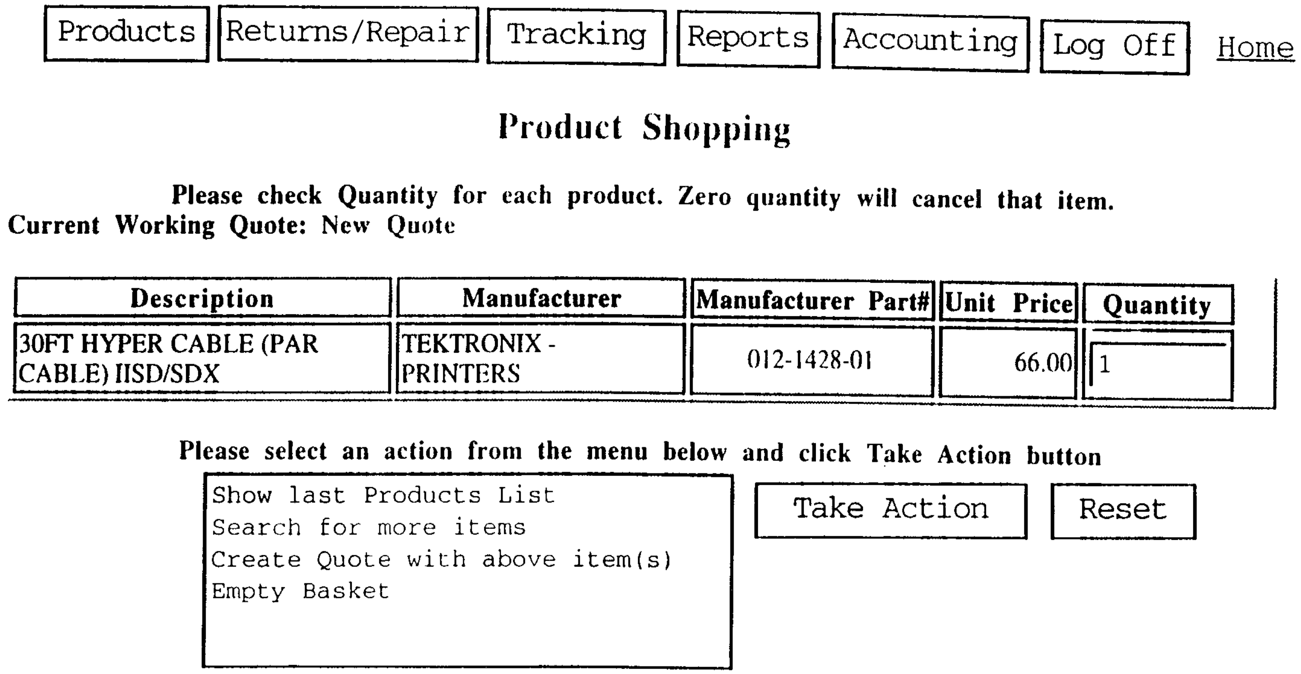


☐	TEKTRONIX - PRINTERS	CABLE INTERCONNECT COLOR QUICK			012-1302-00	50.00
☐	TEKTRONIX - PRINTERS	CABLE INTERCONNECT COLOR QUICK			012-1301-00	61.00
☐	TEKTRONIX - PRINTERS	SCSI CABLE 50PIN TO 25PIN			012-1299-00	55.00
☐	TEKTRONIX - PRINTERS	SCSI CABLE			012-1465-00	61.00

Maximum display lines per page: 10

To narrow down your search within the current selection, click the button below.

FIG. 8 B



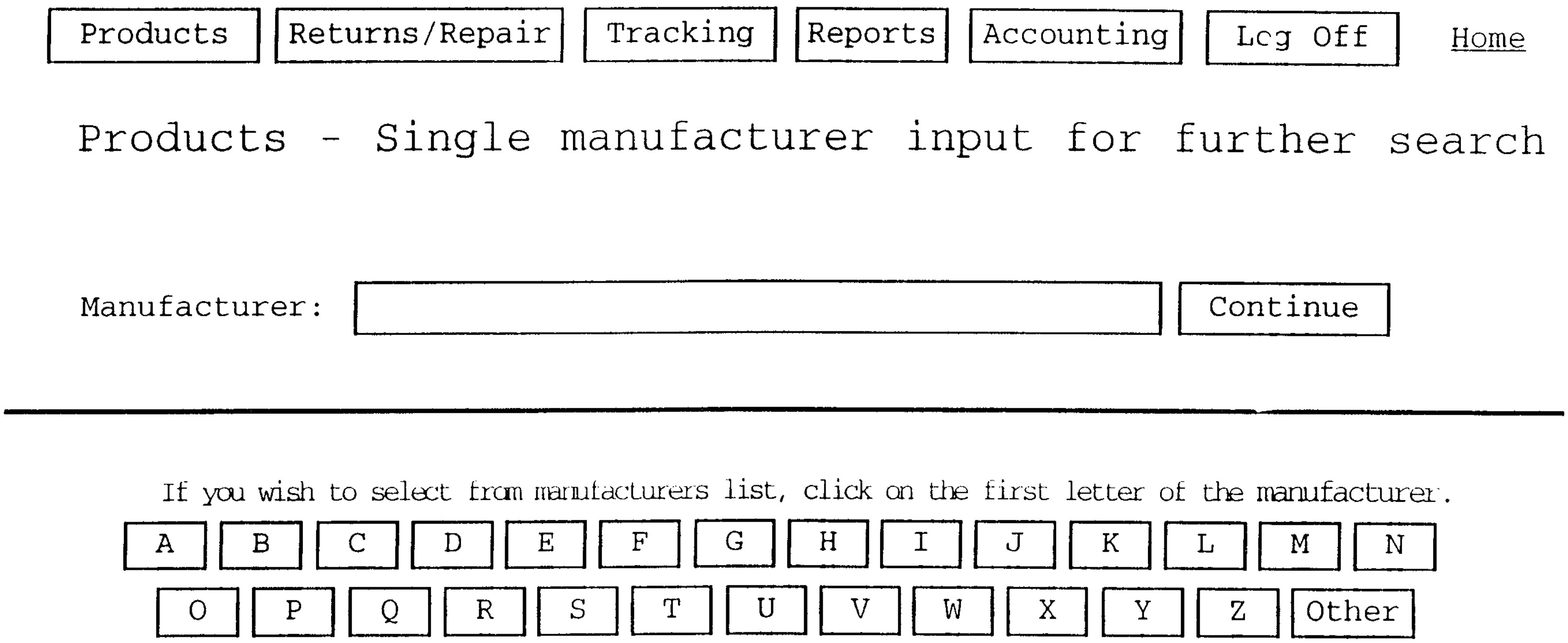
Product Shopping

Please check Quantity for each product. Zero quantity will cancel that item.
Current Working Quote: New Quote

Description	Manufacturer	Manufacturer Part#	Unit Price	Quantity
30FT HYPER CABLE (PAR CABLE) IISD/SDX	TEKTRONIX - PRINTERS	012-1428-01	66.00	1

Please select an action from the menu below and click Take Action button

FIG. 9

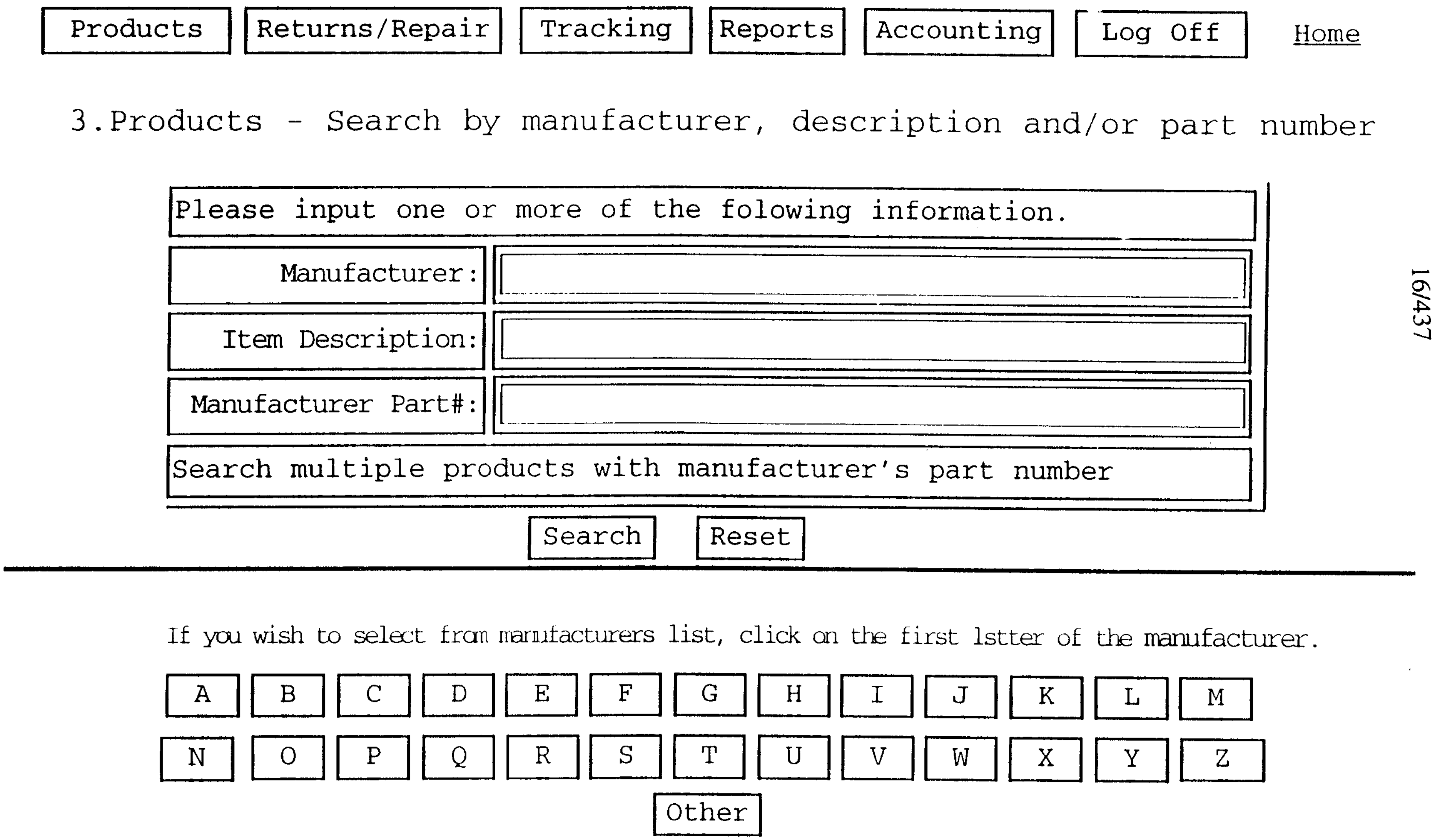


Products - Single manufacturer input for further search

Manufacturer:

If you wish to select from manufacturers list, click on the first letter of the manufacturer.

FIG. 10



3.Products - Search by manufacturer, description and/or part number

Please input one or more of the folowing information.

Manufacturer:

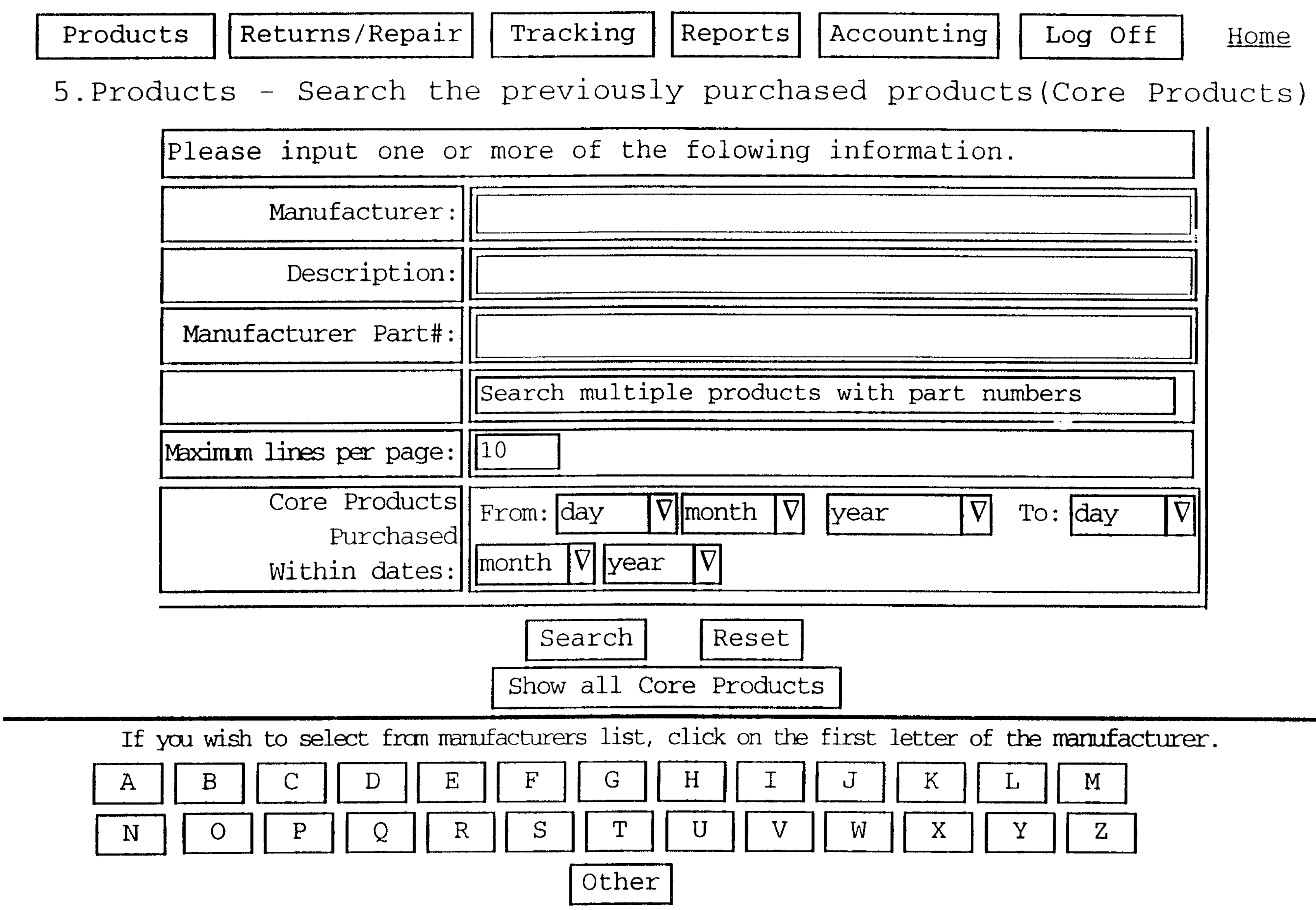
Item Description:

Manufacturer Part#:

Search multiple products with manufacturer's part number

If you wish to select from manufacturers list, click on the first lstter of the manufacturer.

FIG. 11



5.Products - Search the previously purchased products(Core Products)

Please input one or more of the folowing information.

Manufacturer:

Description:

Manufacturer Part#:

Search multiple products with part numbers

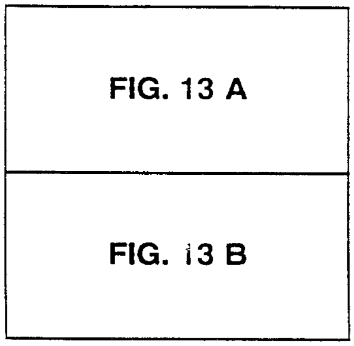
Maximum lines per page: 10

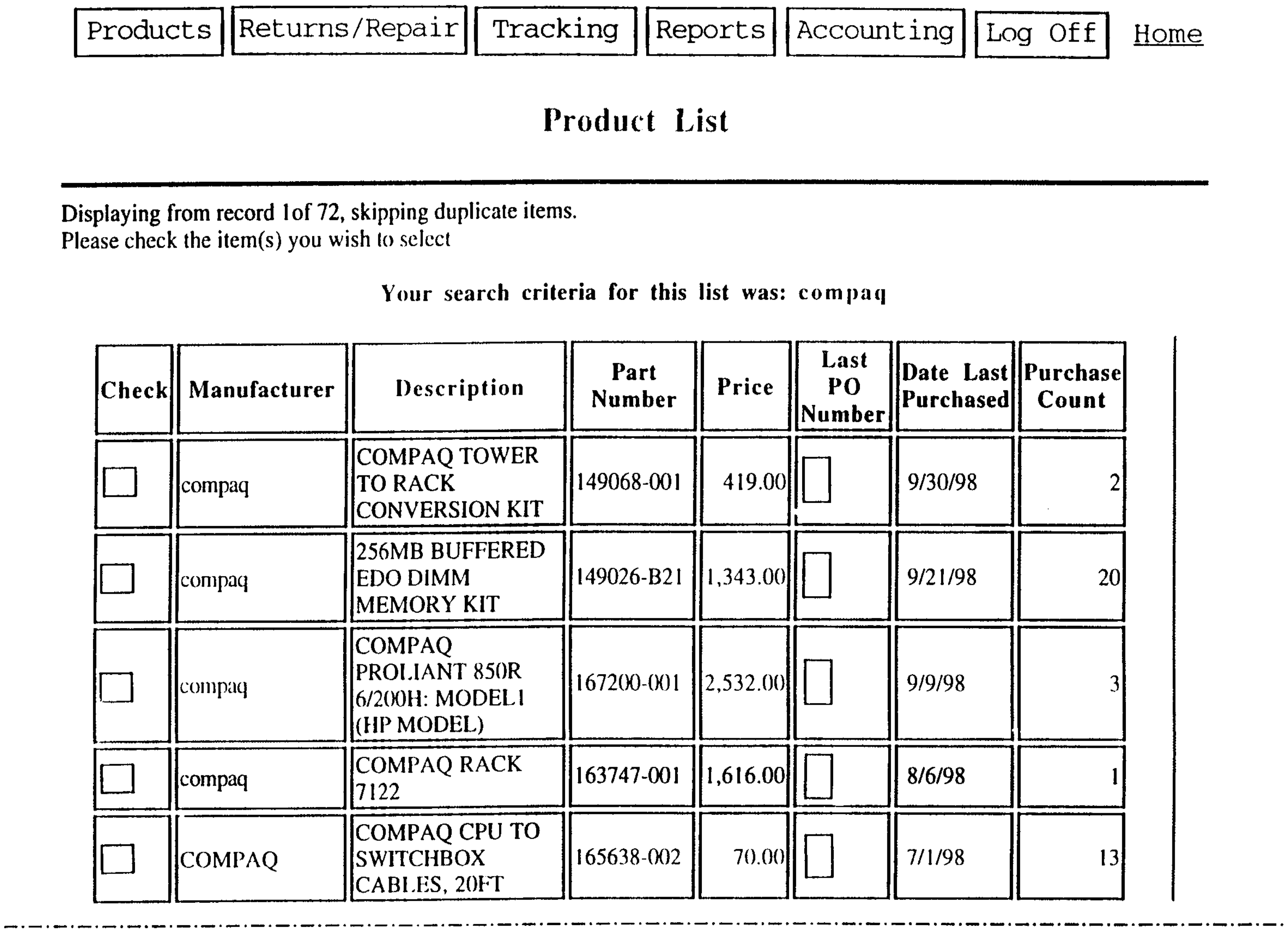
Core Products Purchased Within dates: From: day ▽ month ▽ year ▽ To: day ▽ month ▽ year ▽

If you wish to select from manufacturers list, click on the first letter of the manufacturer.

FIG. 12

FIG. 13





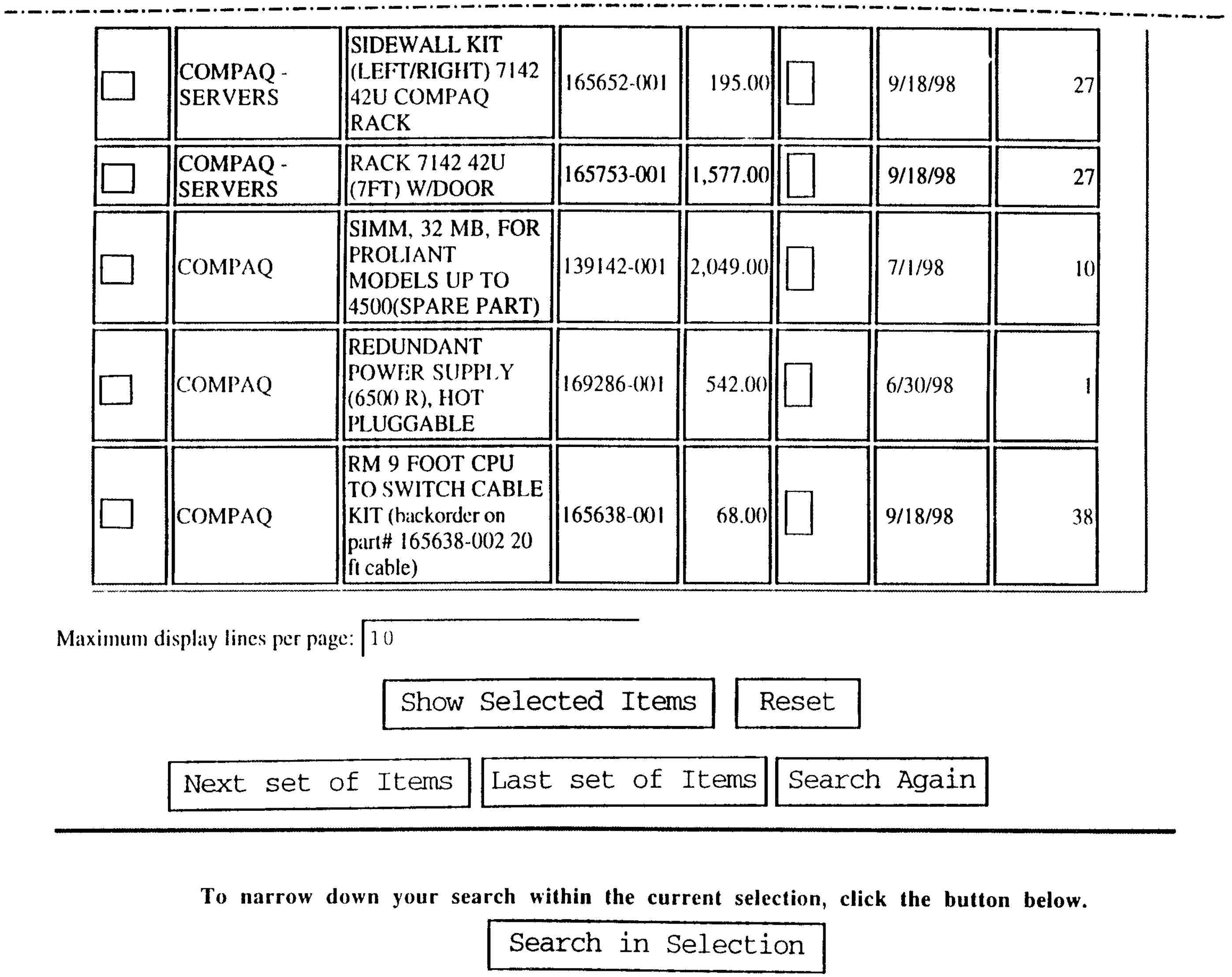
Product List

Displaying from record 1of 72, skipping duplicate items.
Please check the item(s) you wish to select

Your search criteria for this list was: compaq

Check	Manufacturer	Description	Part Number	Price	Last PO Number	Date Last Purchased	Purchase Count
☐	compaq	COMPAQ TOWER TO RACK CONVERSION KIT	149068-001	419.00	☐	9/30/98	2
☐	compaq	256MB BUFFERED EDO DIMM MEMORY KIT	149026-B21	1,343.00	☐	9/21/98	20
☐	compaq	COMPAQ PROLIANT 850R 6/200H: MODEL1 (HP MODEL)	167200-001	2,532.00	☐	9/9/98	3
☐	compaq	COMPAQ RACK 7122	163747-001	1,616.00	☐	8/6/98	1
☐	COMPAQ	COMPAQ CPU TO SWITCHBOX CABLES, 20FT	165638-002	70.00	☐	7/1/98	13

FIG. 13 A

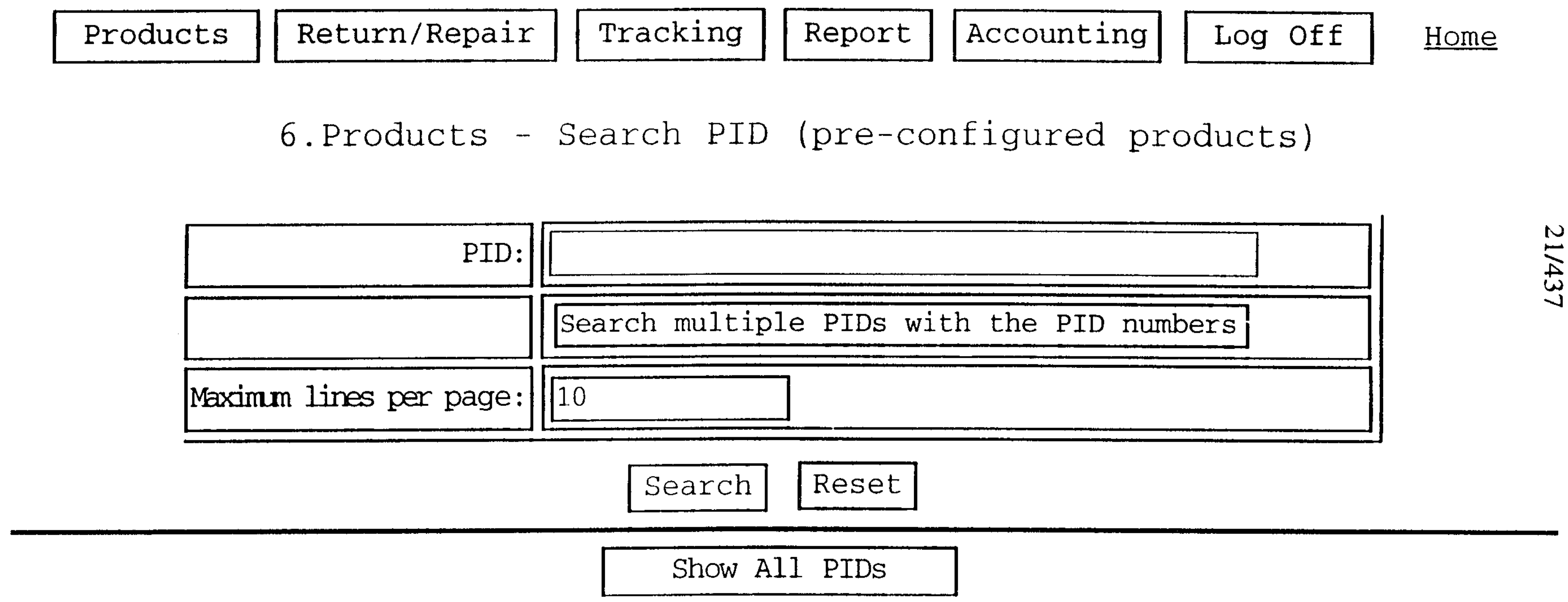


☐	COMPAQ - SERVERS	SIDEWALL KIT (LEFT/RIGHT) 7142 42U COMPAQ RACK	165652-001	195.00	☐	9/18/98	27
☐	COMPAQ - SERVERS	RACK 7142 42U (7FT) W/DOOR	165753-001	1,577.00	☐	9/18/98	27
☐	COMPAQ	SIMM, 32 MB, FOR PROLIANT MODELS UP TO 4500(SPARE PART)	139142-001	2,049.00	☐	7/1/98	10
☐	COMPAQ	REDUNDANT POWER SUPPLY (6500 R), HOT PLUGGABLE	169286-001	542.00	☐	6/30/98	1
☐	COMPAQ	RM 9 FOOT CPU TO SWITCH CABLE KIT (backorder on part# 165638-002 20 ft cable)	165638-001	68.00	☐	9/18/98	38

Maximum display lines per page: 10

To narrow down your search within the current selection, click the button below.

FIG. 13 B

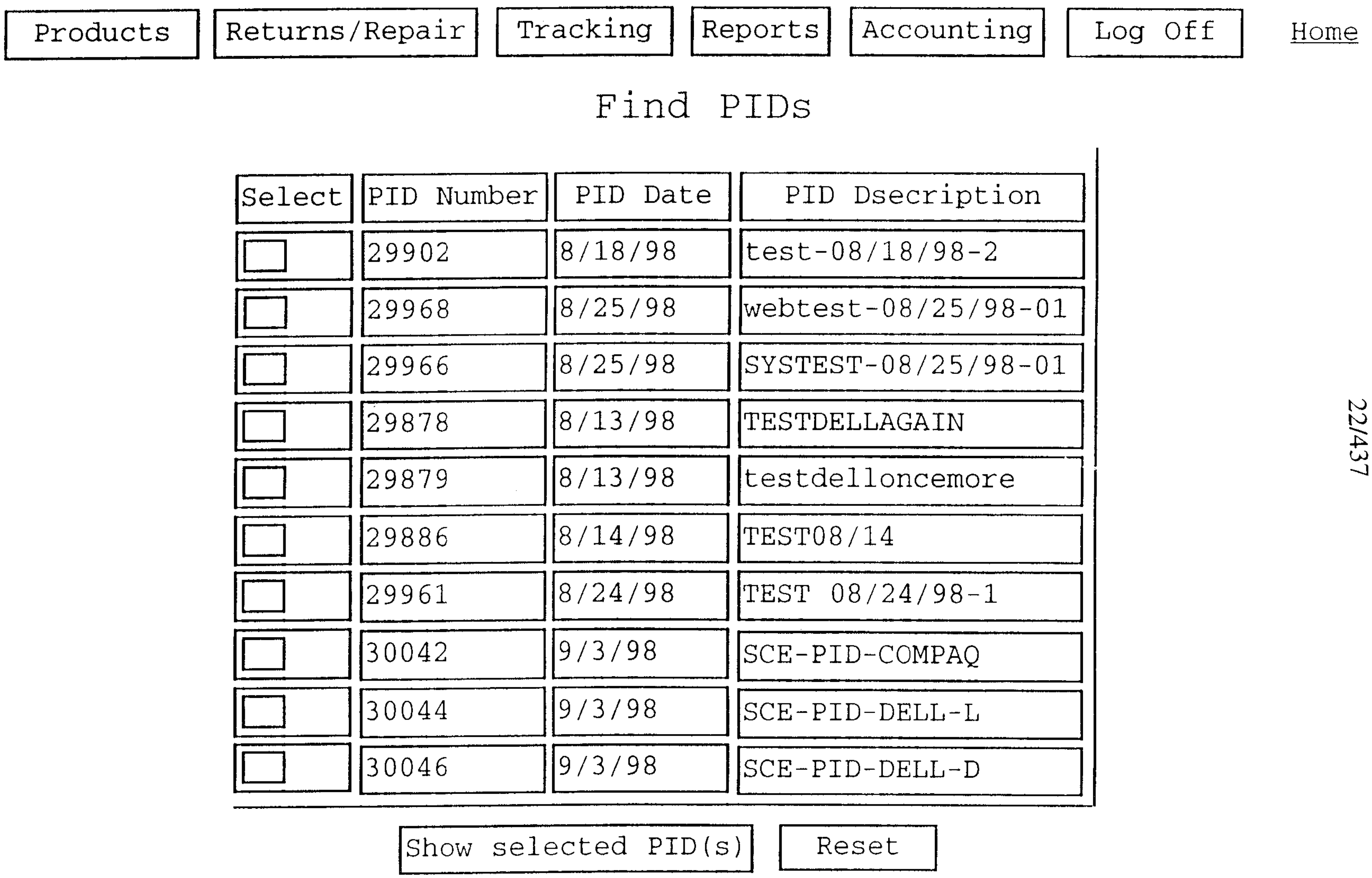


6.Products - Search PID (pre-configured products)

PID:

Maximum lines per page: 10

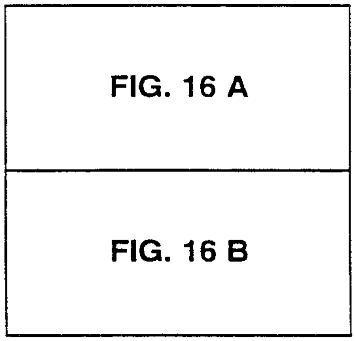
FIG. 14

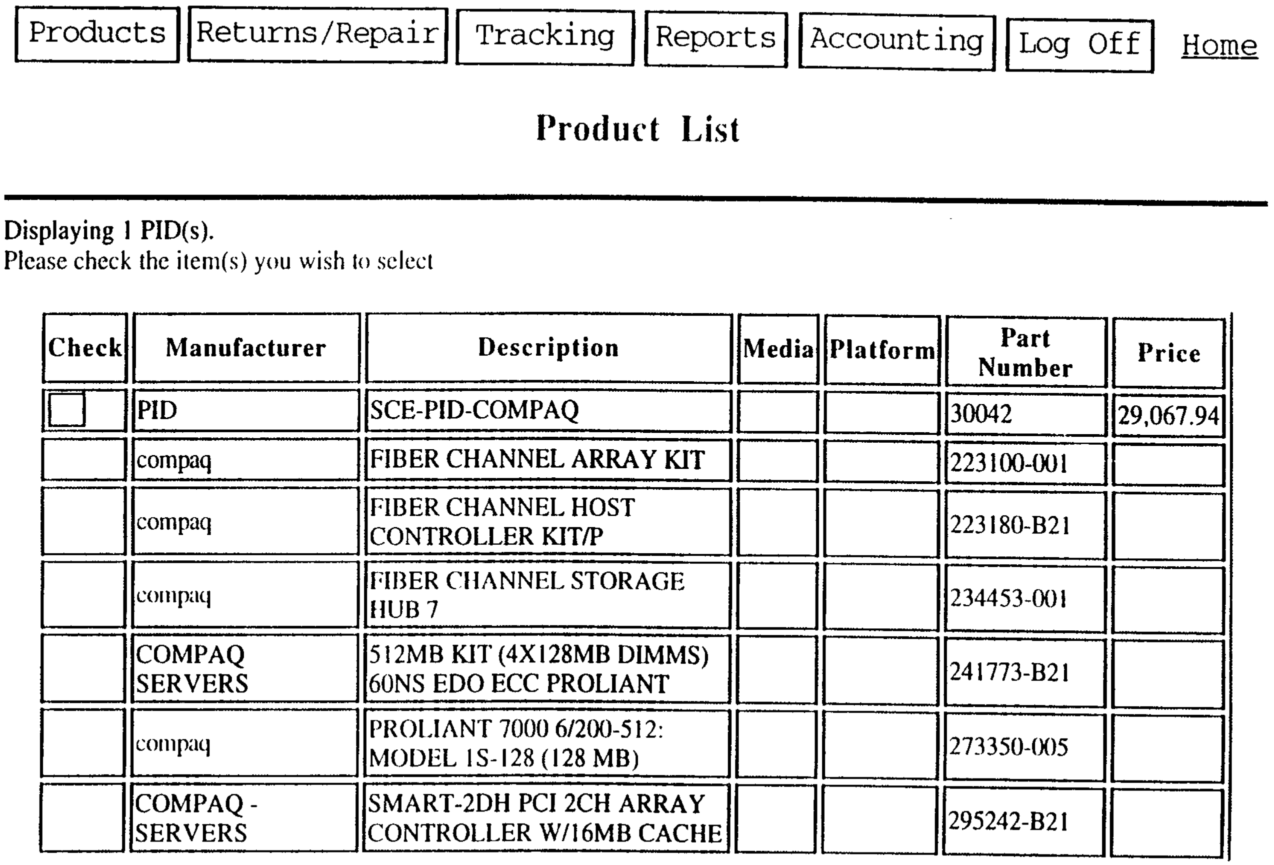


Select	PID Number	PID Date	PID Dsecription
☐	29902	8/18/98	test-08/18/98-2
☐	29968	8/25/98	webtest-08/25/98-01
☐	29966	8/25/98	SYSTEST-08/25/98-01
☐	29878	8/13/98	TESTDELLAGAIN
☐	29879	8/13/98	testdelloncemore
☐	29886	8/14/98	TEST08/14
☐	29961	8/24/98	TEST 08/24/98-1
☐	30042	9/3/98	SCE-PID-COMPAQ
☐	30044	9/3/98	SCE-PID-DELL-L
☐	30046	9/3/98	SCE-PID-DELL-D

FIG. 15

FIG. 16



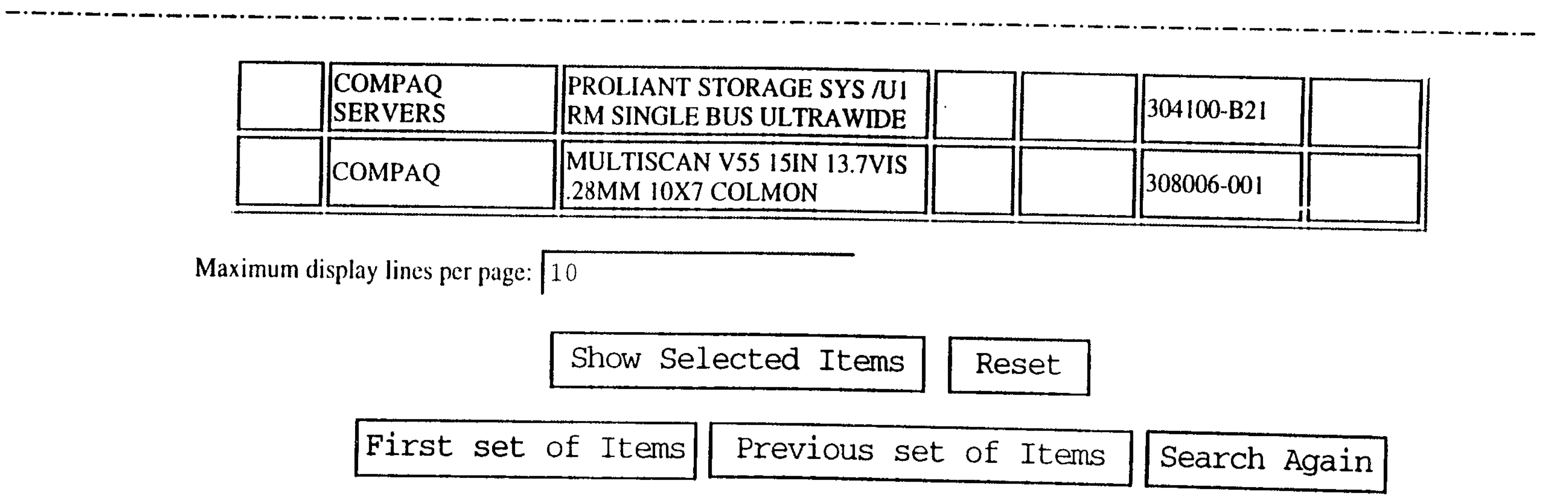


Product List

Displaying 1 PID(s).
Please check the item(s) you wish to select

Check	Manufacturer	Description	Media	Platform	Part Number	Price
☐	PID	SCE-PID-COMPAQ			30042	29,067.94
	compaq	FIBER CHANNEL ARRAY KIT			223100-001	
	compaq	FIBER CHANNEL HOST CONTROLLER KIT/P			223180-B21	
	compaq	FIBER CHANNEL STORAGE HUB 7			234453-001	
	COMPAQ SERVERS	512MB KIT (4X128MB DIMMS) 60NS EDO ECC PROLIANT			241773-B21	
	compaq	PROLIANT 7000 6/200-512: MODEL 1S-128 (128 MB)			273350-005	
	COMPAQ - SERVERS	SMART-2DH PCI 2CH ARRAY CONTROLLER W/16MB CACHE			295242-B21	

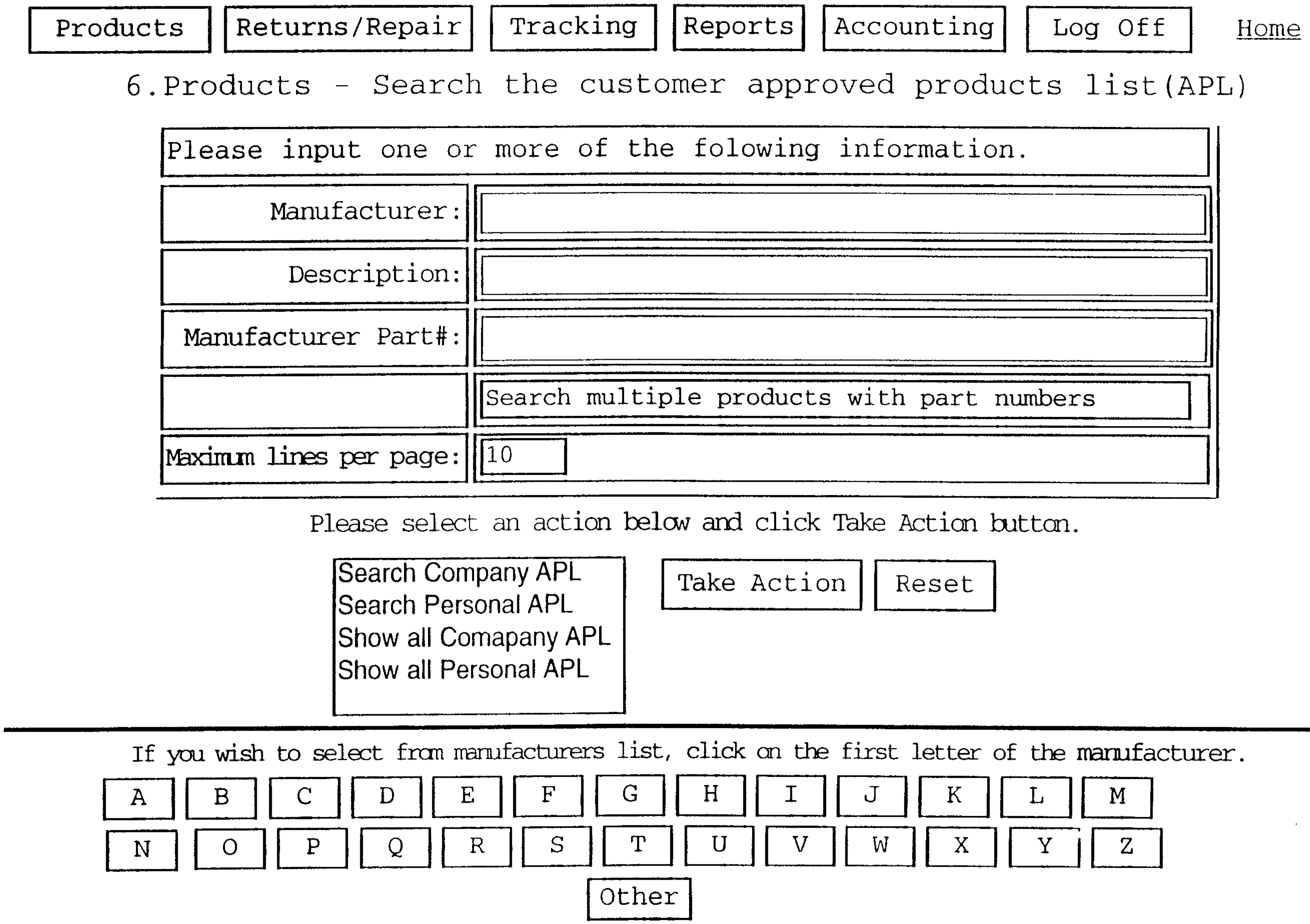
FIG. 16 A



	COMPAQ SERVERS	PROLIANT STORAGE SYS /U1 RM SINGLE BUS ULTRAWIDE			304100-B21	
	COMPAQ	MULTISCAN V55 15IN 13.7VIS .28MM 10X7 COLMON			308006-001	

Maximum display lines per page: 10

FIG. 16 B



6.Products - Search the customer approved products list(APL)

Please input one or more of the folowing information.

Manufacturer:

Description:

Manufacturer Part#:

Search multiple products with part numbers

Maximum lines per page: 10

Please select an action below and click Take Action button.

Search Company APL
Search Personal APL
Show all Comapany APL
Show all Personal APL

If you wish to select from manufacturers list, click on the first letter of the manufacturer.

FIG. 17

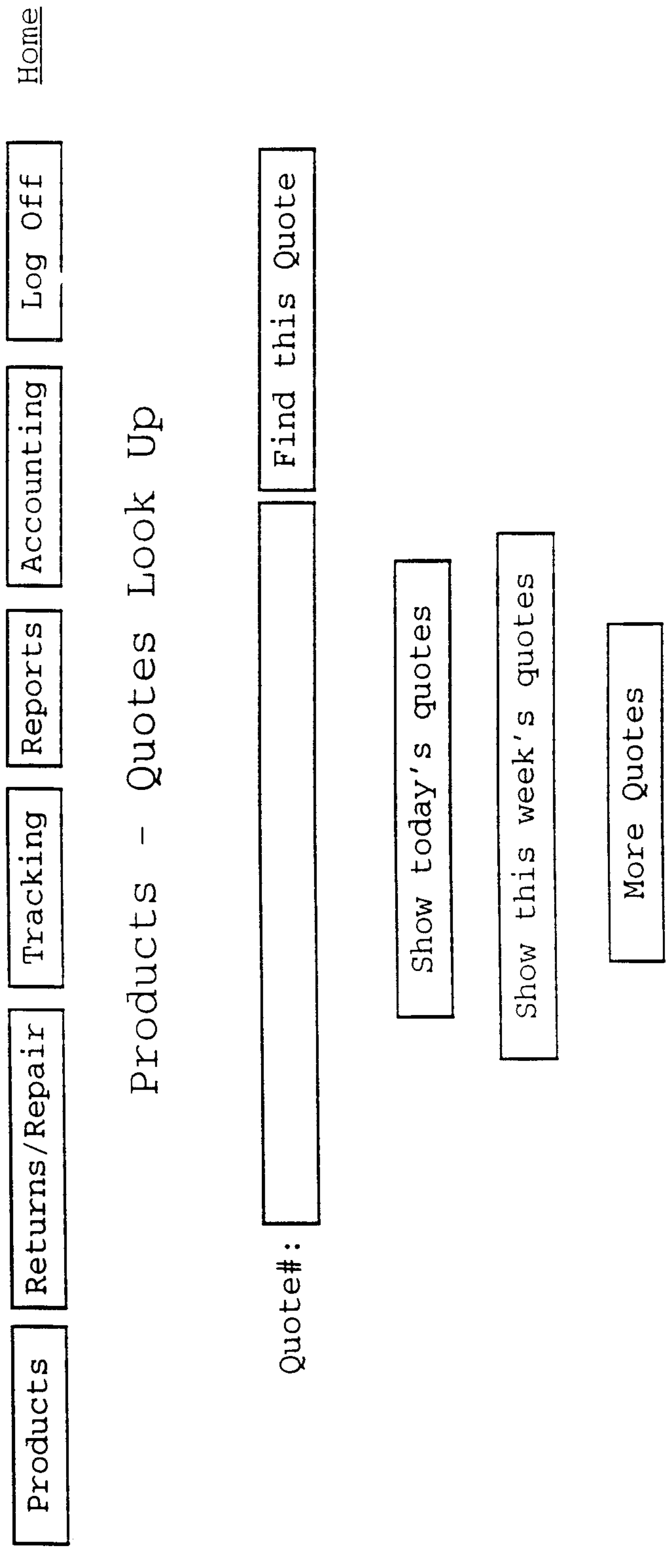
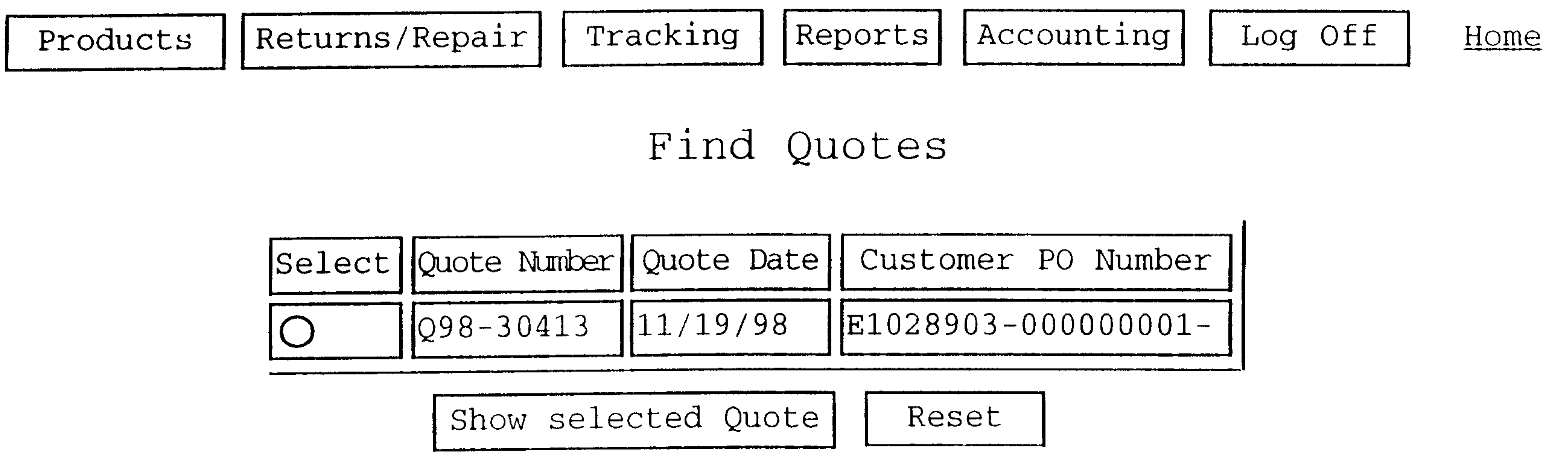

Products
Returns/Repair
Tracking
Reports
Accounting
Log Off
Home
Products - Quotes Look Up
Quote#:
Find this Quote
Show today's quotes
Show this week's quotes
More Quotes

FIG. 18

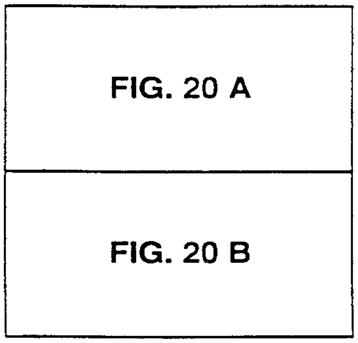


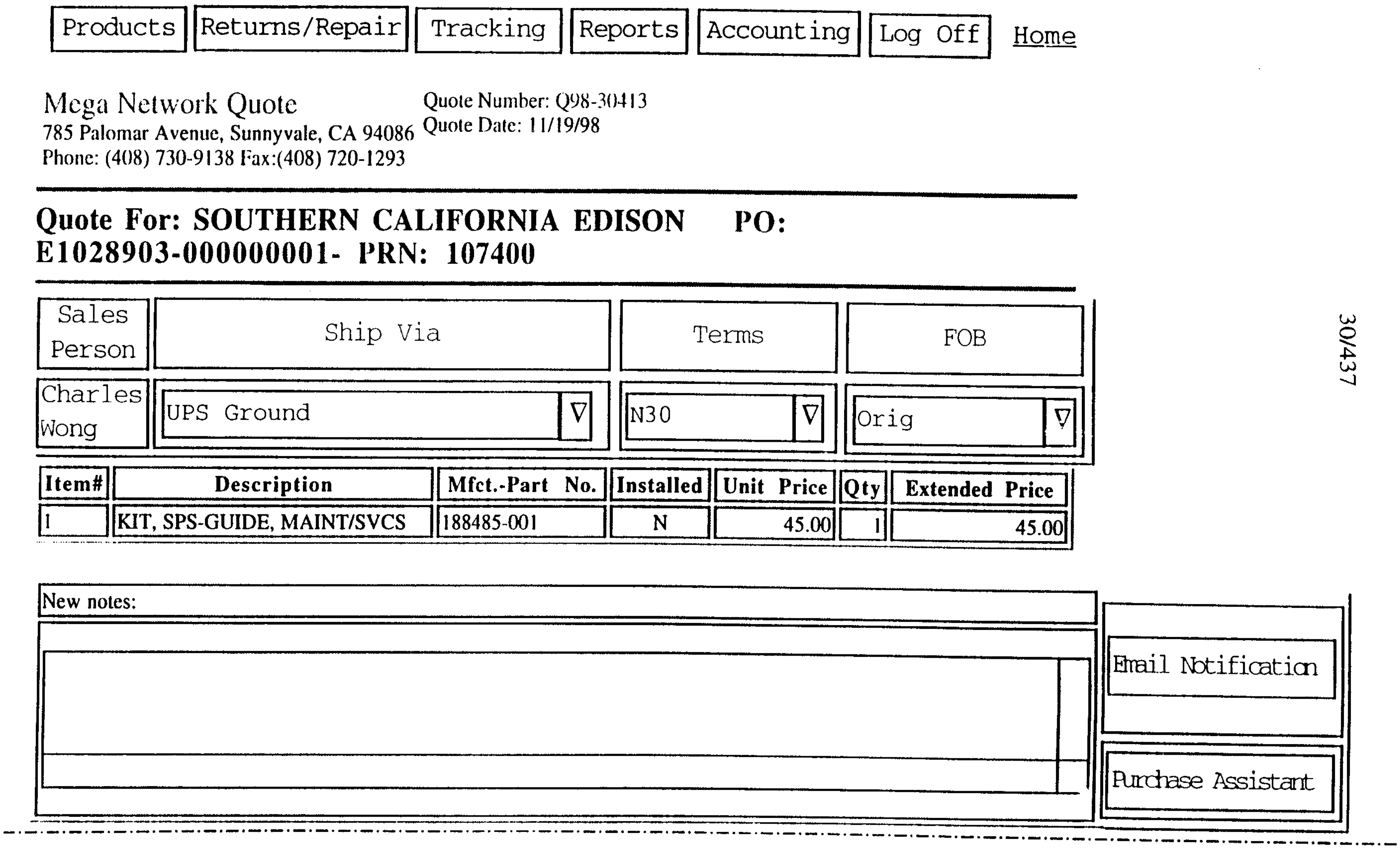
Find Quotes

Select	Quote Number	Quote Date	Customer PO Number
○	Q98-30413	11/19/98	E1028903-000000001-

FIG. 19

FIG. 20





Mega Network Quote
785 Palomar Avenue, Sunnyvale, CA 94086
Phone: (408) 730-9138 Fax:(408) 720-1293

Quote Number: Q98-30413
Quote Date: 11/19/98

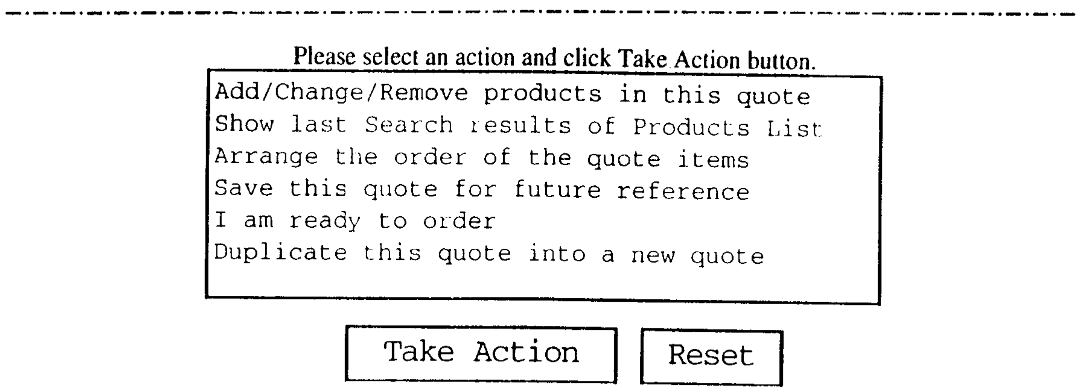
Quote For: SOUTHERN CALIFORNIA EDISON PO: E1028903-000000001- PRN: 107400

Sales Person	Ship Via	Terms	FOB
Charles Wong	UPS Ground ▽	N30 ▽	Orig ▽

Item#	Description	Mfct.-Part No.	Installed	Unit Price	Qty	Extended Price
1	KIT, SPS-GUIDE, MAINT/SVCS	188485-001	N	45.00	1	45.00

New notes:

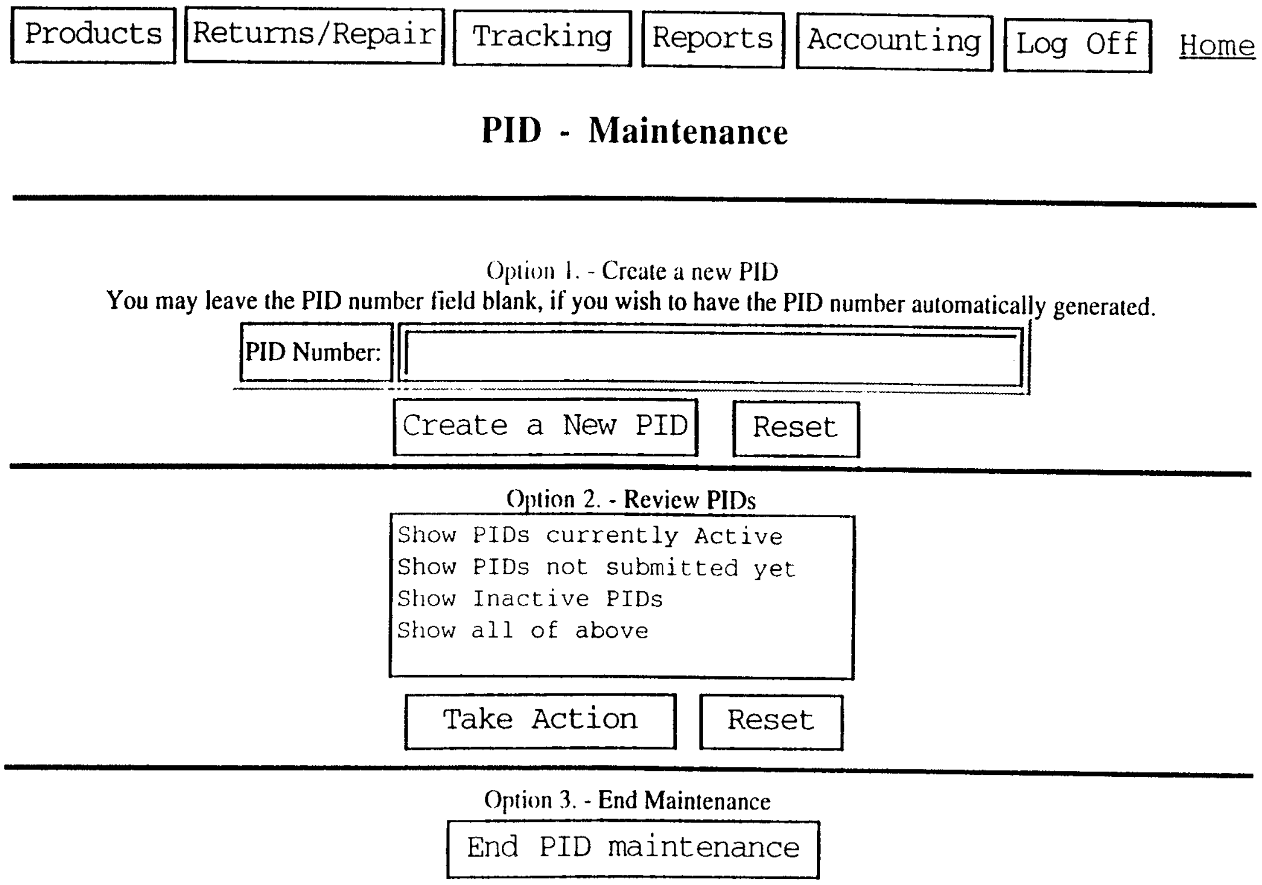
FIG. 20 A



Please select an action and click Take Action button.

Add/Change/Remove products in this quote
Show last Search results of Products List
Arrange the order of the quote items
Save this quote for future reference
I am ready to order
Duplicate this quote into a new quote
Take Action
Reset

FIG. 20 B



PID - Maintenance

Option 1. - Create a new PID

You may leave the PID number field blank, if you wish to have the PID number automatically generated.

PID Number:

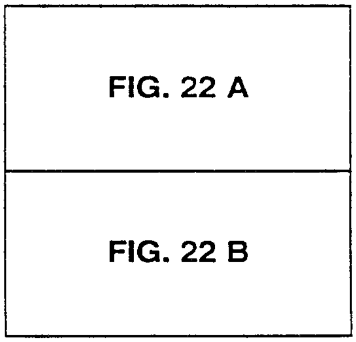
Option 2. - Review PIDs

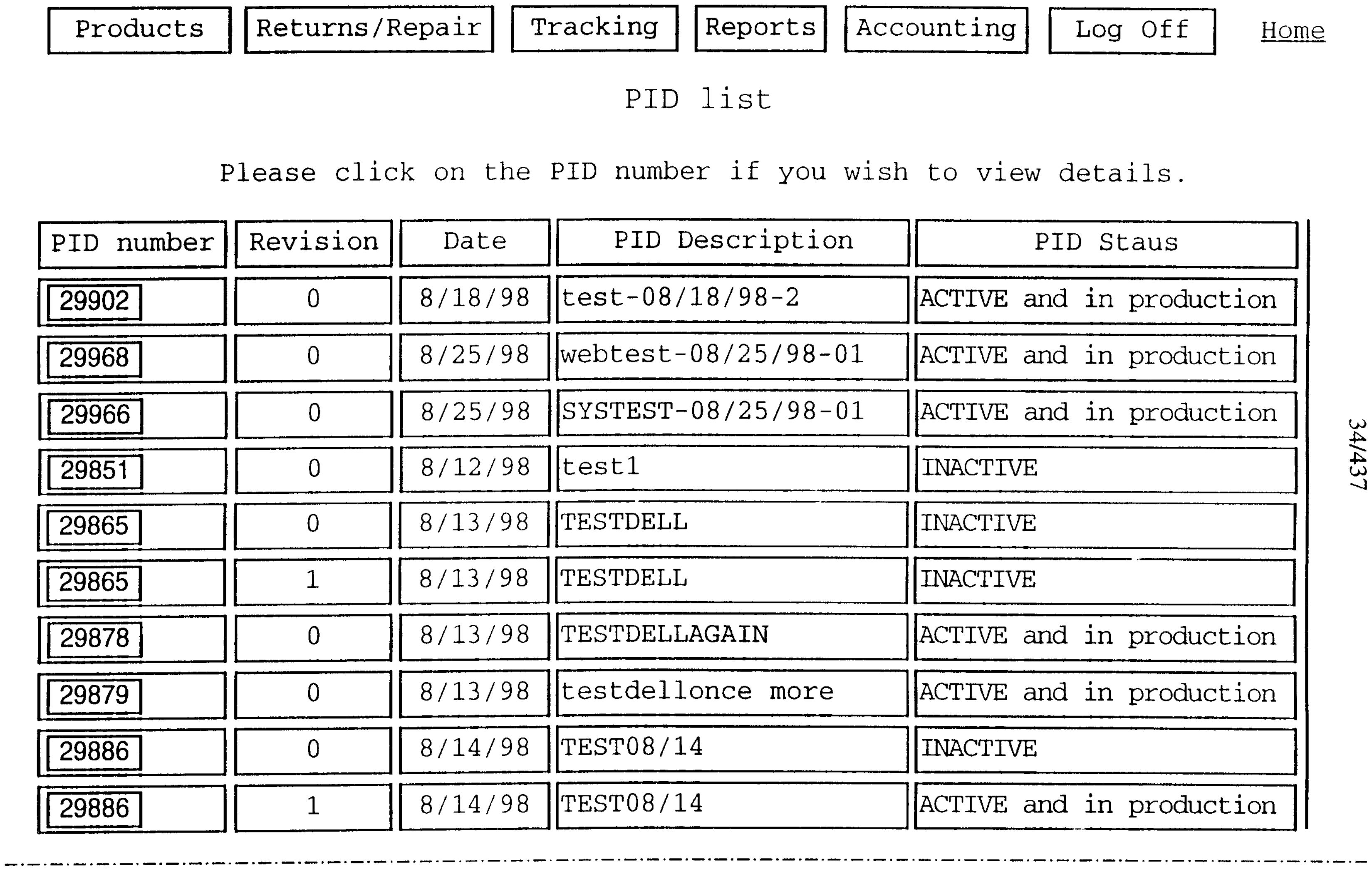
Show PIDs currently Active
Show PIDs not submitted yet
Show Inactive PIDs
Show all of above

Option 3. - End Maintenance

FIG. 21

FIG. 22





PID list

Please click on the PID number if you wish to view details.

PID number	Revision	Date	PID Description	PID Staus
29902	0	8/18/98	test-08/18/98-2	ACTIVE and in production
29968	0	8/25/98	webtest-08/25/98-01	ACTIVE and in production
29966	0	8/25/98	SYSTEST-08/25/98-01	ACTIVE and in production
29851	0	8/12/98	test1	INACTIVE
29865	0	8/13/98	TESTDELL	INACTIVE
29865	1	8/13/98	TESTDELL	INACTIVE
29878	0	8/13/98	TESTDELLAGAIN	ACTIVE and in production
29879	0	8/13/98	testdellonce more	ACTIVE and in production
29886	0	8/14/98	TEST08/14	INACTIVE
29886	1	8/14/98	TEST08/14	ACTIVE and in production

FIG. 22A

29961	0	8/24/98	TEST 08/24/98-1	ACTIVE and in production
30042	0	9/3/98	SCE-PID-COMPAQ	ACTIVE and in production
30044	0	9/3/98	SCE-PID-DELL-L	ACTIVE and in production
30046	0	9/3/98	SCE-PID-DELL-D	ACTIVE and in production

FIG. 22B

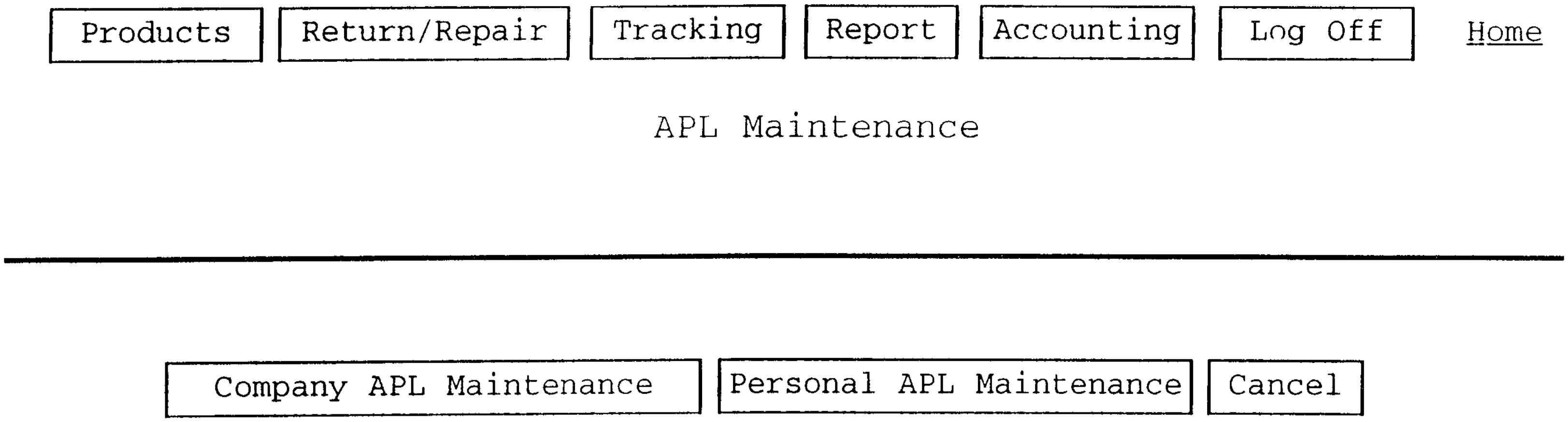
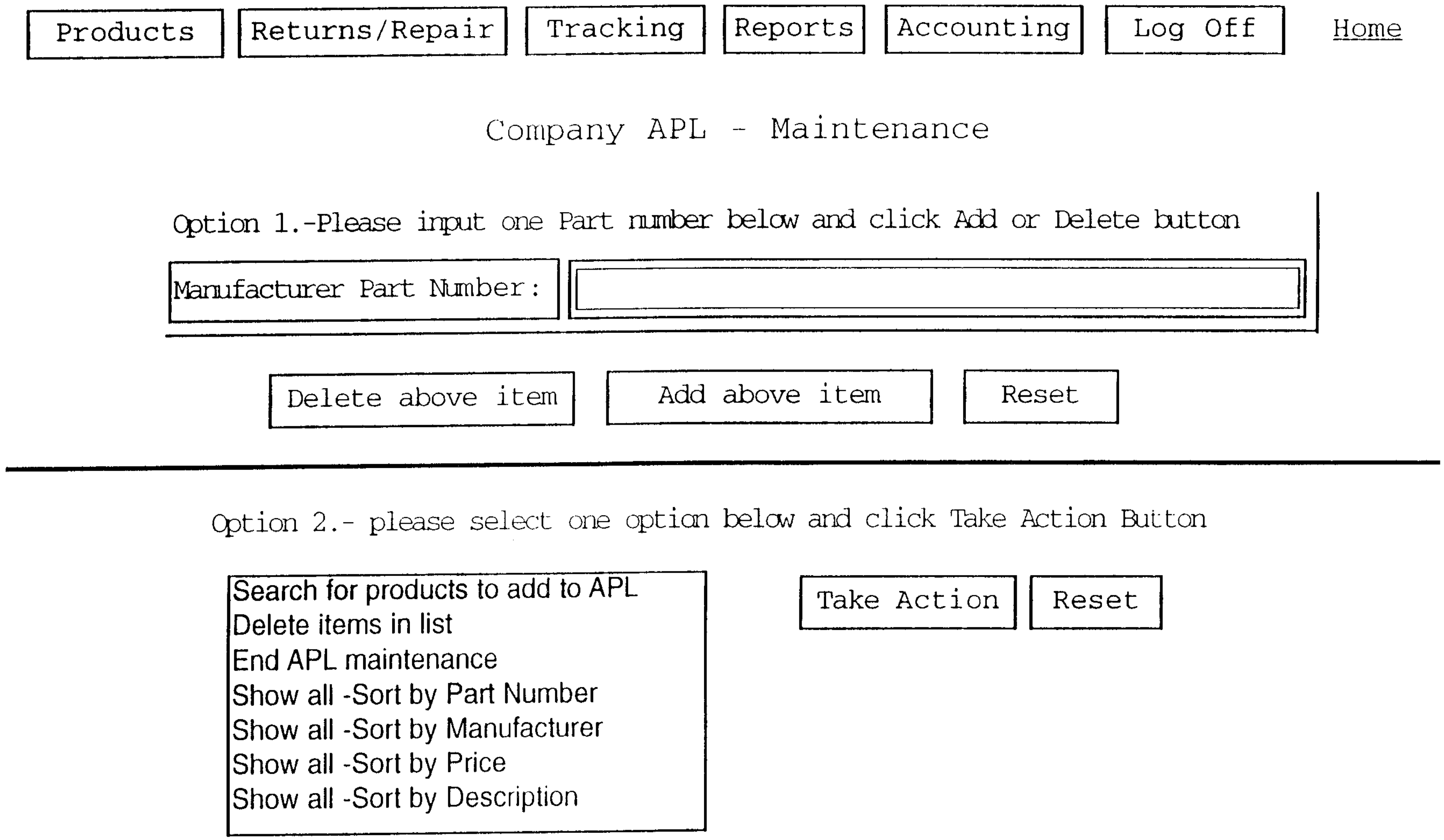

Products
Return/Repair
Tracking
Report
Accounting
Log Off
Home
APL Maintenance
Company APL Maintenance
Personal APL Maintenance
Cancel

FIG. 23



Company APL - Maintenance

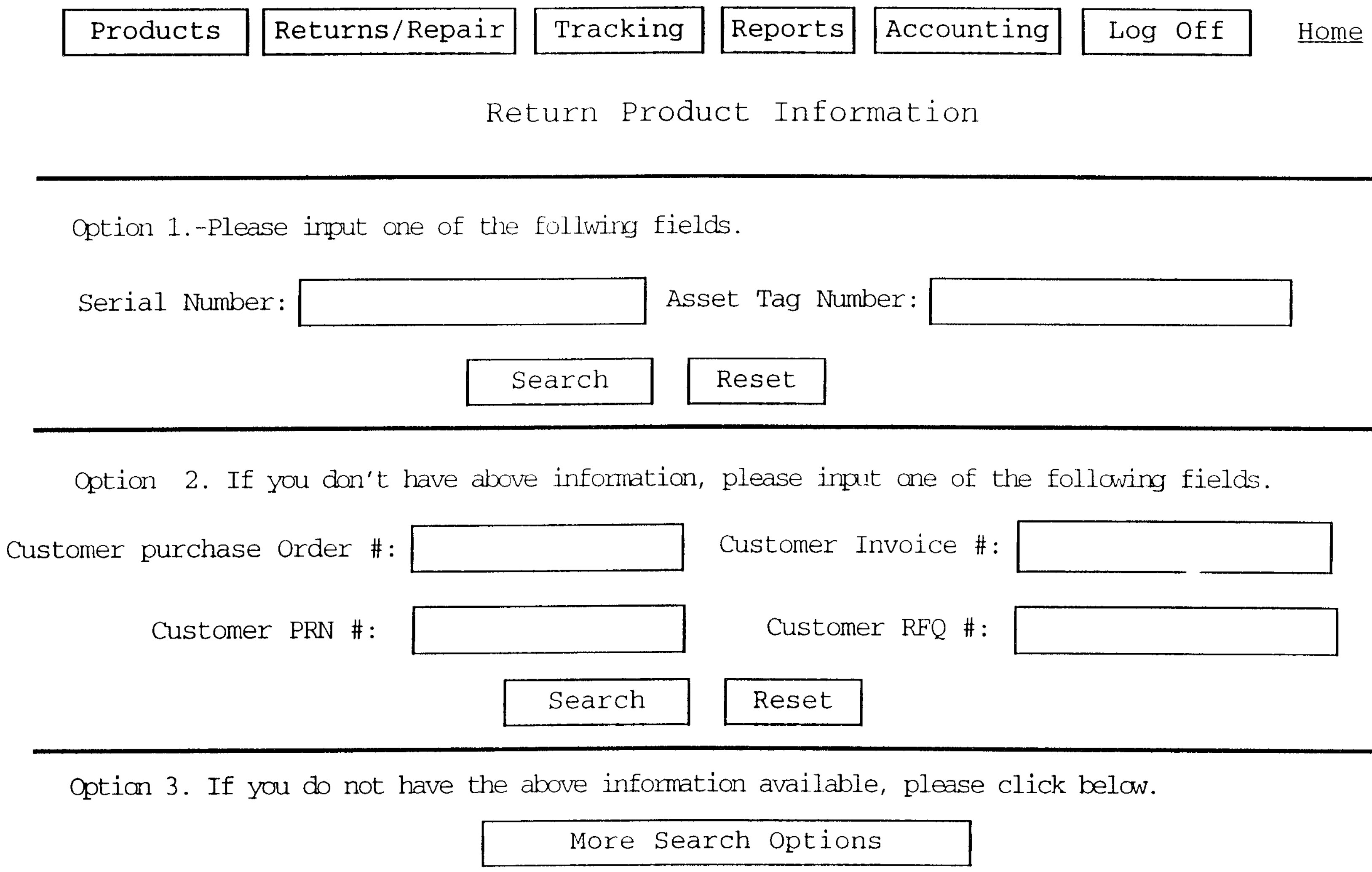
Option 1.-Please input one Part number below and click Add or Delete button

Manufacturer Part Number:

Option 2.- please select one option below and click Take Action Button

Search for products to add to APL
Delete items in list
End APL maintenance
Show all -Sort by Part Number
Show all -Sort by Manufacturer
Show all -Sort by Price
Show all -Sort by Description

FIG. 24



Return Product Information

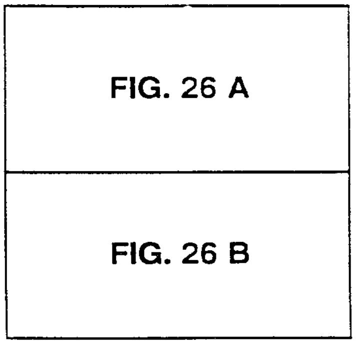
Option 1.-Please input one of the follwing fields.

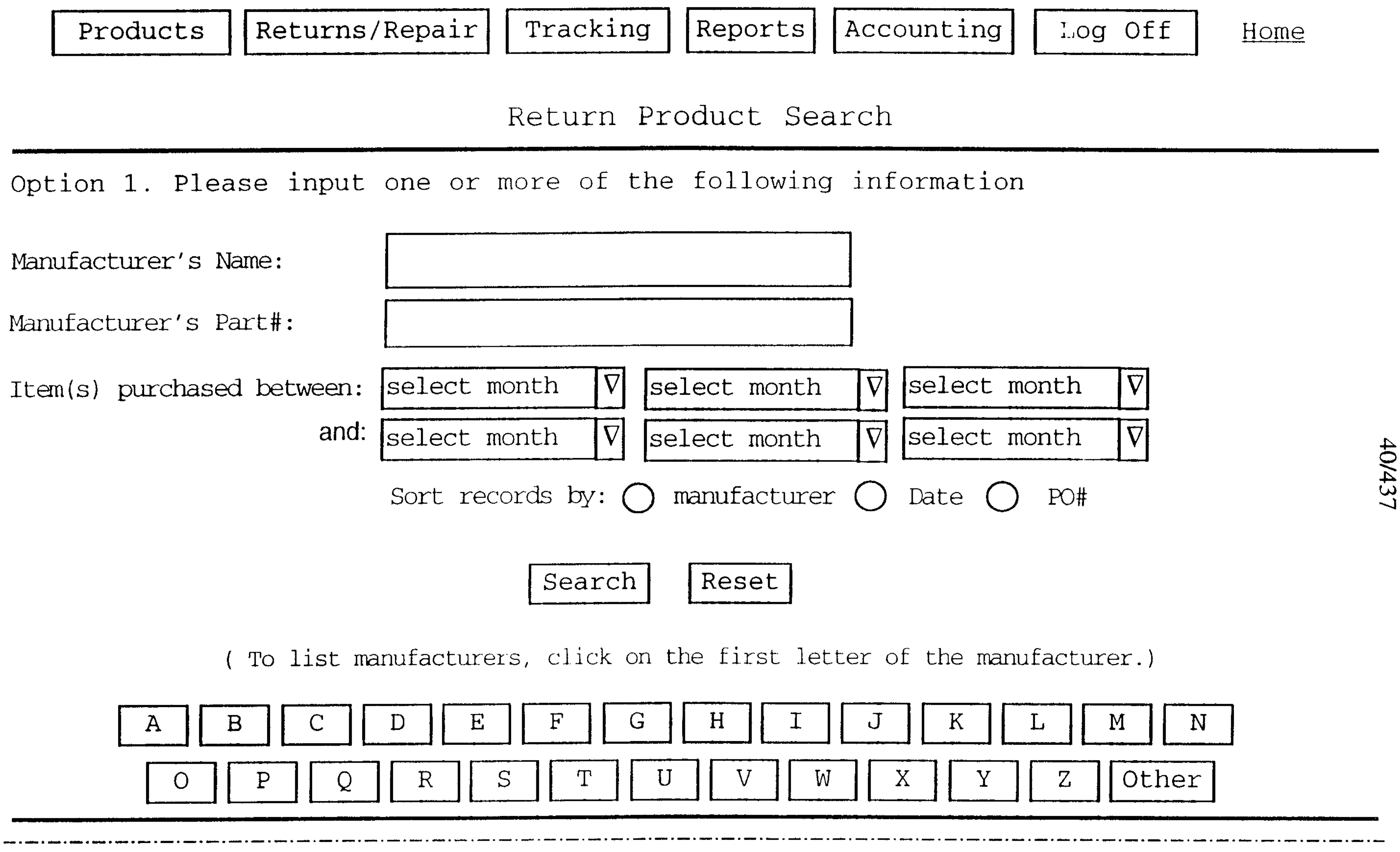
Option 2. If you don't have above information, please input one of the following fields.

Option 3. If you do not have the above information available, please click below.

FIG. 25

FIG. 26





Return Product Search

Option 1. Please input one or more of the following information

Manufacturer's Name:

Manufacturer's Part#:

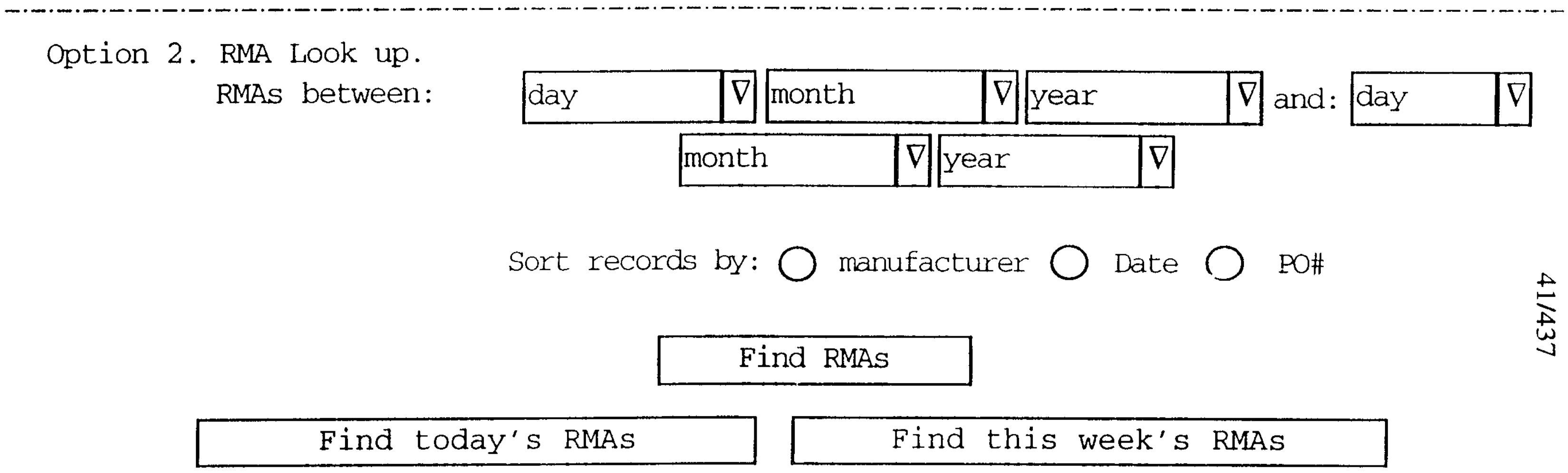
Item(s) purchased between: select month ∇ select month ∇ select month ∇

and: select month ∇ select month ∇ select month ∇

Sort records by: ○ manufacturer ○ Date ○ PO#

(To list manufacturers, click on the first letter of the manufacturer.)

FIG. 26A

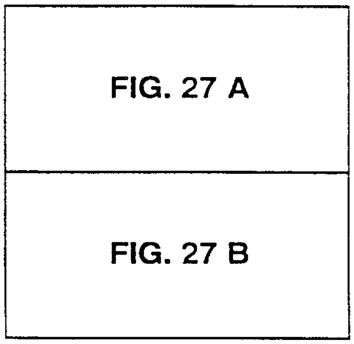


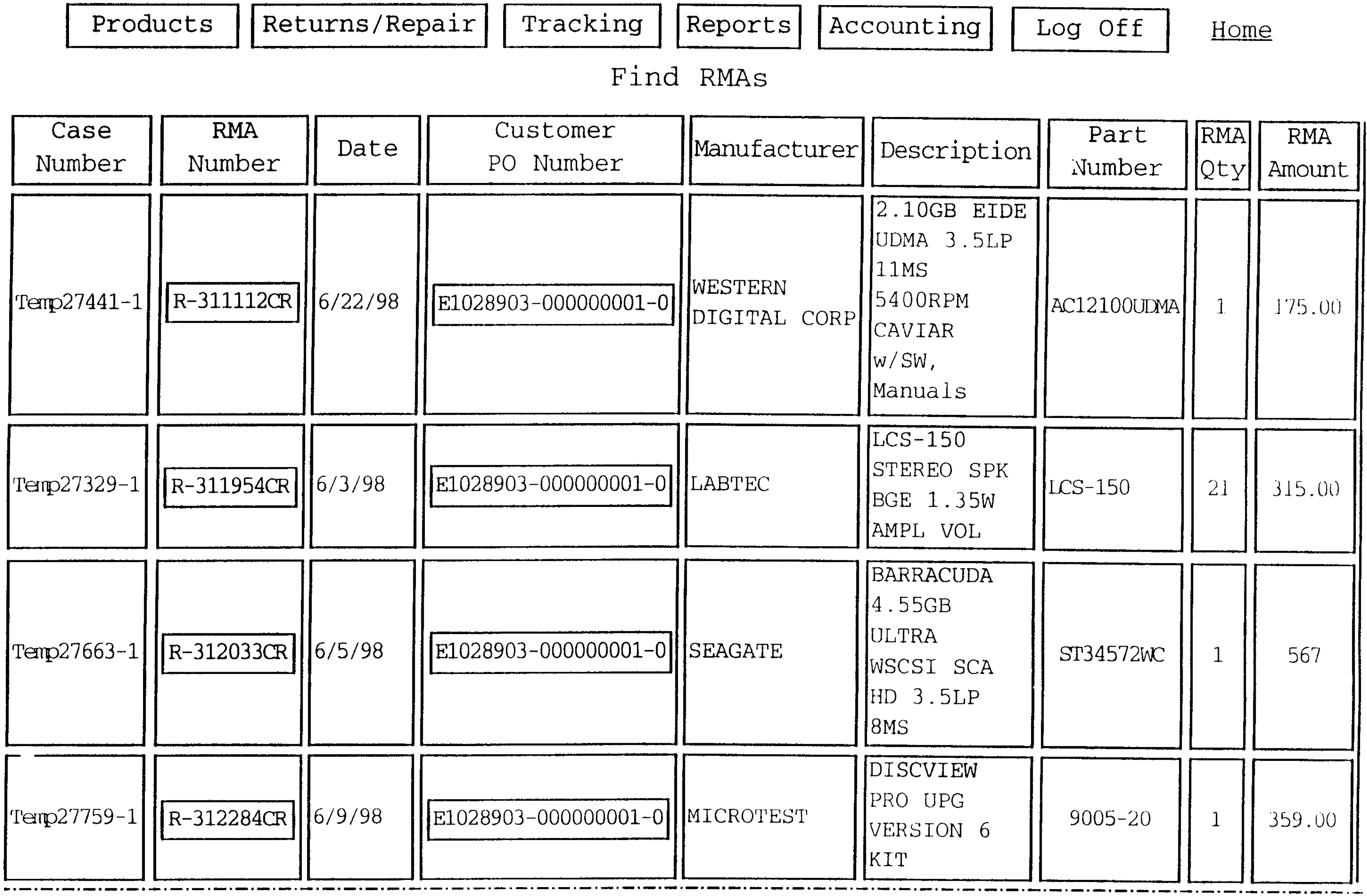
Option 2. RMA Look up.
RMAs between: day ▽ month ▽ year ▽ and: day ▽ month ▽ year ▽

Sort records by: ○ manufacturer ○ Date ○ PO#

FIG. 26B

FIG. 27





Find RMAs

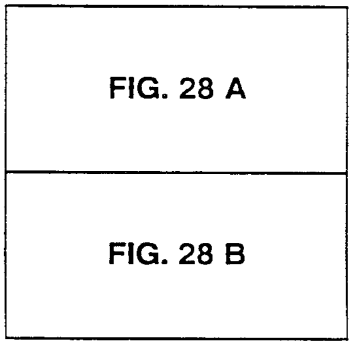
Case Number	RMA Number	Date	Customer PO Number	Manufacturer	Description	Part Number	RMA Qty	RMA Amount
Temp27441-1	R-311112CR	6/22/98	E1028903-000000001-0	WESTERN DIGITAL CORP	2.10GB EIDE UDMA 3.5LP 11MS 5400RPM CAVIAR w/SW, Manuals	AC12100UDMA	1	175.00
Temp27329-1	R-311954CR	6/3/98	E1028903-000000001-0	LABTEC	LCS-150 STEREO SPK BGE 1.35W AMPL VOL	LCS-150	21	315.00
Temp27663-1	R-312033CR	6/5/98	E1028903-000000001-0	SEAGATE	BARRACUDA 4.55GB ULTRA WSCSI SCA HD 3.5LP 8MS	ST34572WC	1	567
Temp27759-1	R-312284CR	6/9/98	E1028903-000000001-0	MICROTEST	DISCVIEW PRO UPG VERSION 6 KIT	9005-20	1	359.00

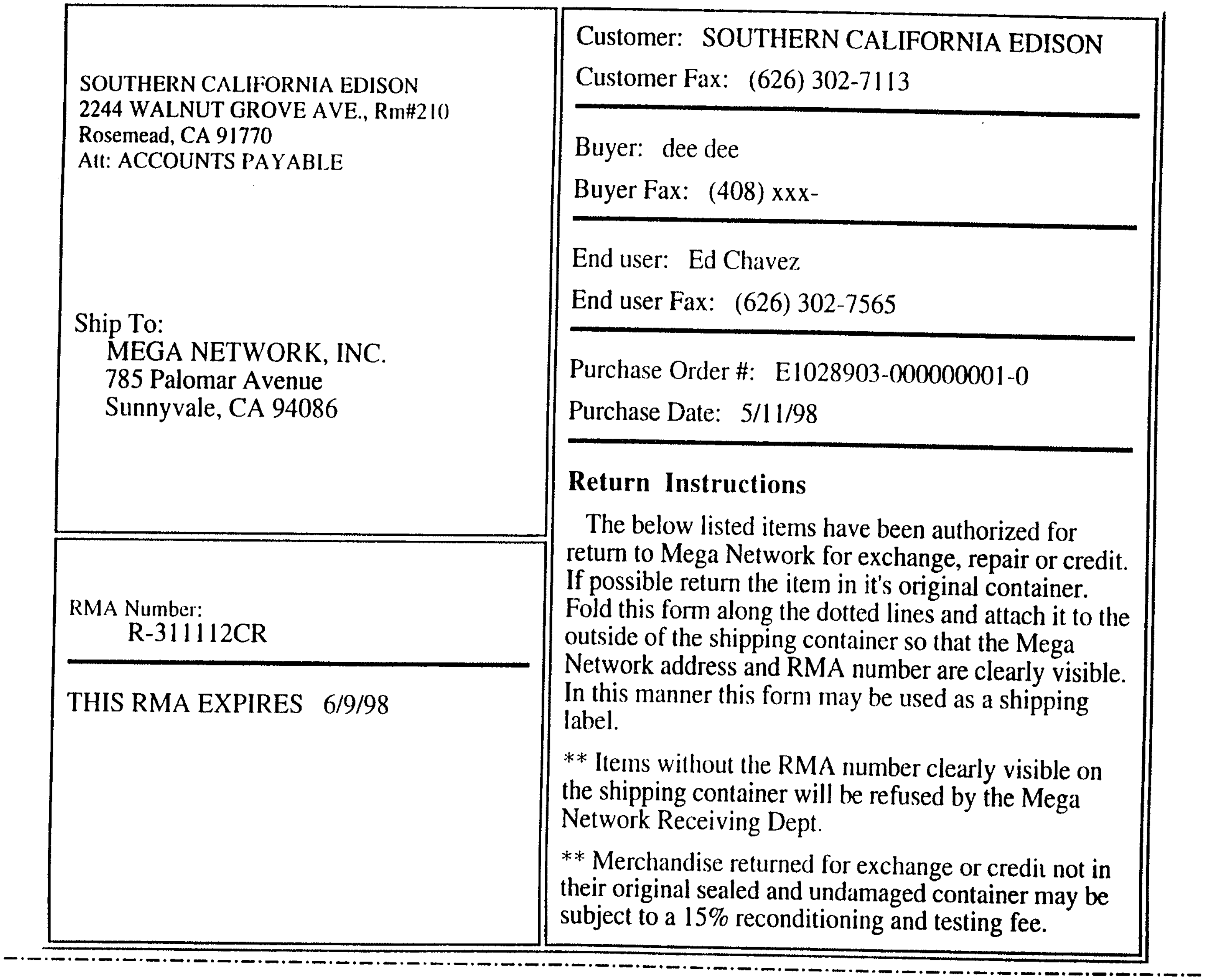
FIG. 27A

Temp27824-1	R-311112CR	6/15/98	E1028903-000000001-0	ASAPTEC- CONTROLLER	32BIT EISA FSCSI2 BMHA MASTER KIT	AHA-2742AT KIT	1	285.00
Temp27353-1	R-313773CR	6/22/98	E1028903-000000001-0	DIAMOND MULTIMEDIA	STEALTH II MODEL S220 4MB PCI SGRAM BD	STIIS220-XL1	1	94.00
Temp27891-1	R-314033CR	6/29/98	E1028903-000000001-0	WESTERN DIGITAL CORP	CAVIAR 4.0GB INT EIDE HD 3.5LP 11.5MS 5200ROM RTL	4000RTL	1	215.00
Temp27290-2	R-314168CR	6/30/98	E1028903-000000001-0	COREL LICENSING	CLP XARA MOST LIC ML	LPCLPC-CX10	1	160.00
Temp27518-1	R-314311CR	7/1/98	E1028903-000000001-0	DELL	IDE CD ROM internal drive 12/24x	88845	2	236.00

FIG. 27B

FIG. 28





SOUTHERN CALIFORNIA EDISON
2244 WALNUT GROVE AVE., Rm#210
Rosemead, CA 91770
Att: ACCOUNTS PAYABLE

Ship To:
MEGA NETWORK, INC.
785 Palomar Avenue
Sunnyvale, CA 94086

RMA Number:
R-311112CR

THIS RMA EXPIRES 6/9/98

Customer: SOUTHERN CALIFORNIA EDISON
Customer Fax: (626) 302-7113

Buyer: dee dee
Buyer Fax: (408) xxx-

End user: Ed Chavez
End user Fax: (626) 302-7565

Purchase Order #: E1028903-000000001-0
Purchase Date: 5/11/98

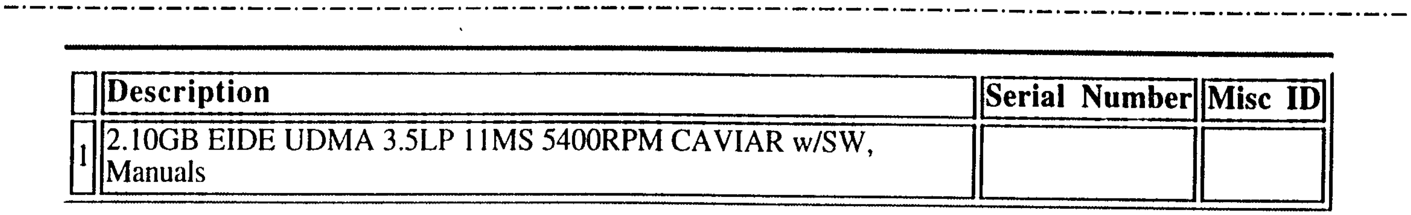
Return Instructions

The below listed items have been authorized for return to Mega Network for exchange, repair or credit. If possible return the item in it's original container. Fold this form along the dotted lines and attach it to the outside of the shipping container so that the Mega Network address and RMA number are clearly visible. In this manner this form may be used as a shipping label.

** Items without the RMA number clearly visible on the shipping container will be refused by the Mega Network Receiving Dept.

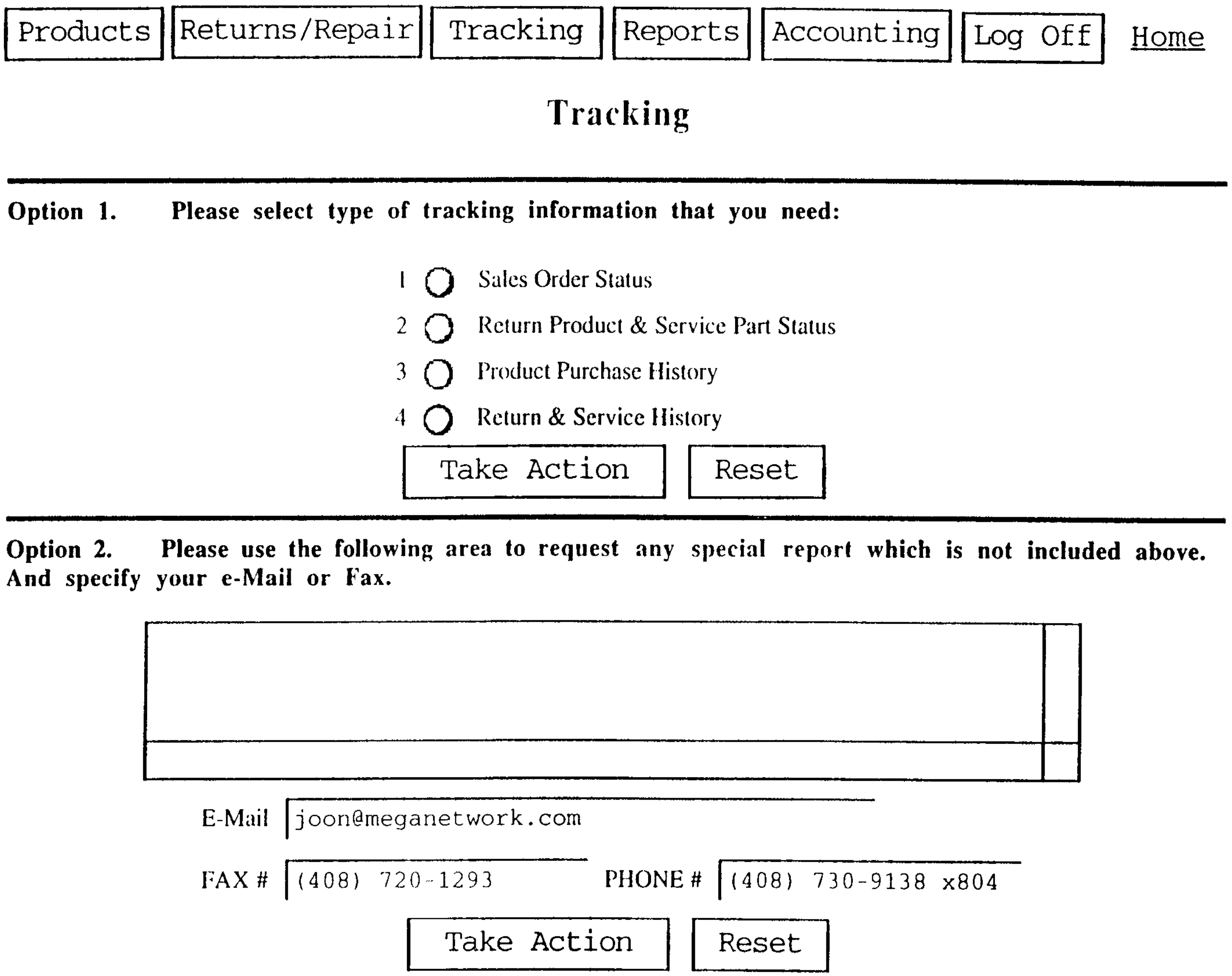
** Merchandise returned for exchange or credit not in their original sealed and undamaged container may be subject to a 15% reconditioning and testing fee.

FIG. 28 A



	Description	Serial Number	Misc ID
1	2.10GB EIDE UDMA 3.5LP 11MS 5400RPM CAVIAR w/SW, Manuals		

FIG. 28 B



Tracking

Option 1. Please select type of tracking information that you need:

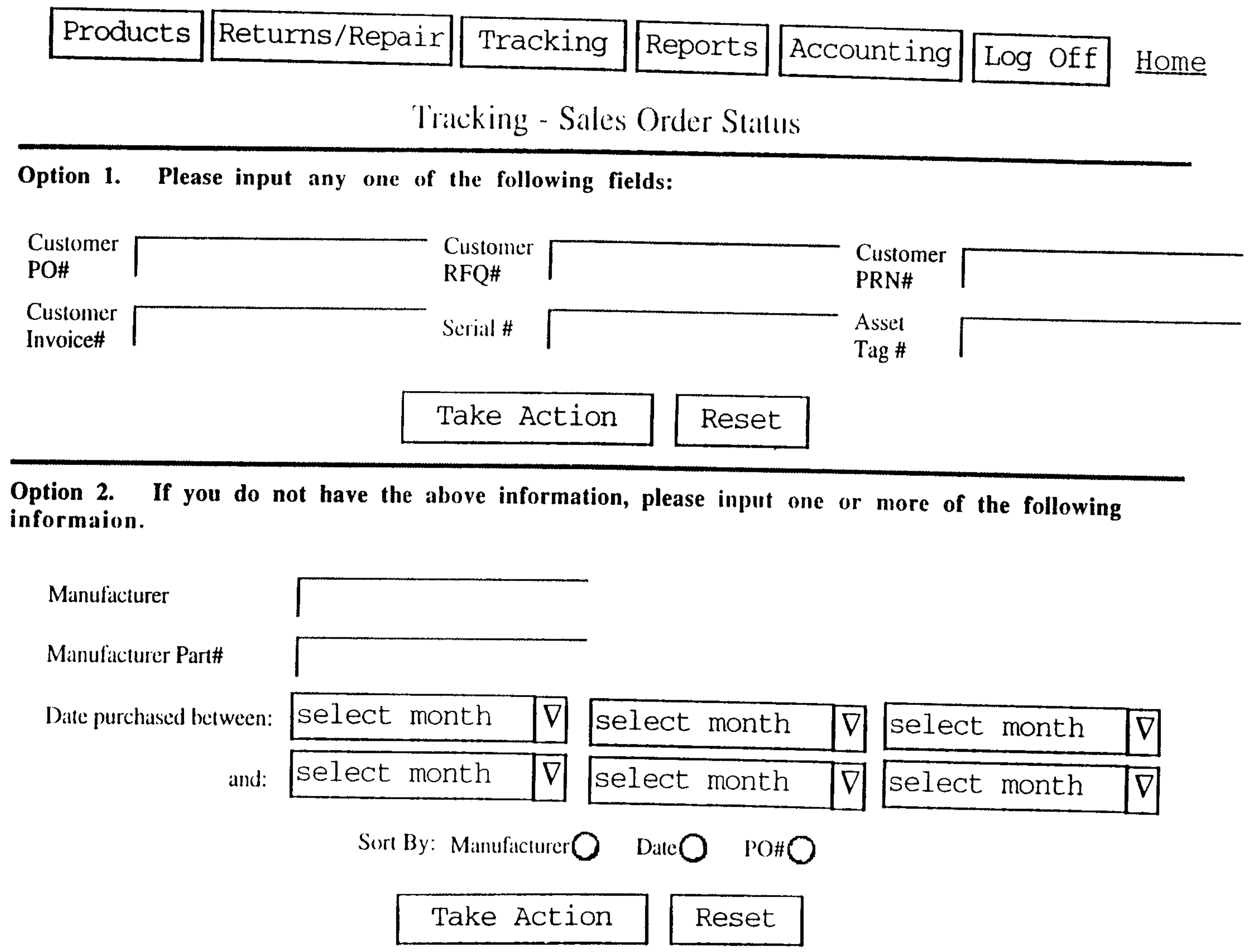
1 ○ Sales Order Status
2 ○ Return Product & Service Part Status
3 ○ Product Purchase History
4 ○ Return & Service History

Option 2. Please use the following area to request any special report which is not included above. And specify your e-Mail or Fax.

E-Mail joon@meganetwork.com

FAX # (408) 720-1293 PHONE # (408) 730-9138 x804

FIG. 29



Tracking - Sales Order Status

Option 1. Please input any one of the following fields:

Option 2. If you do not have the above information, please input one or more of the following informaion.

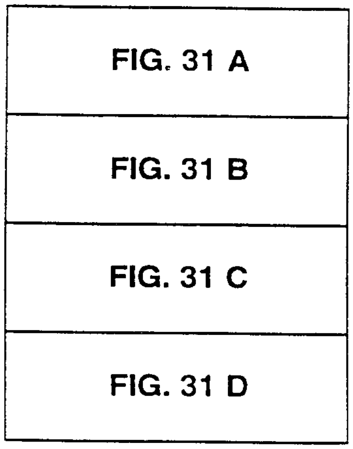
Date purchased between: select month ▽ select month ▽ select month ▽

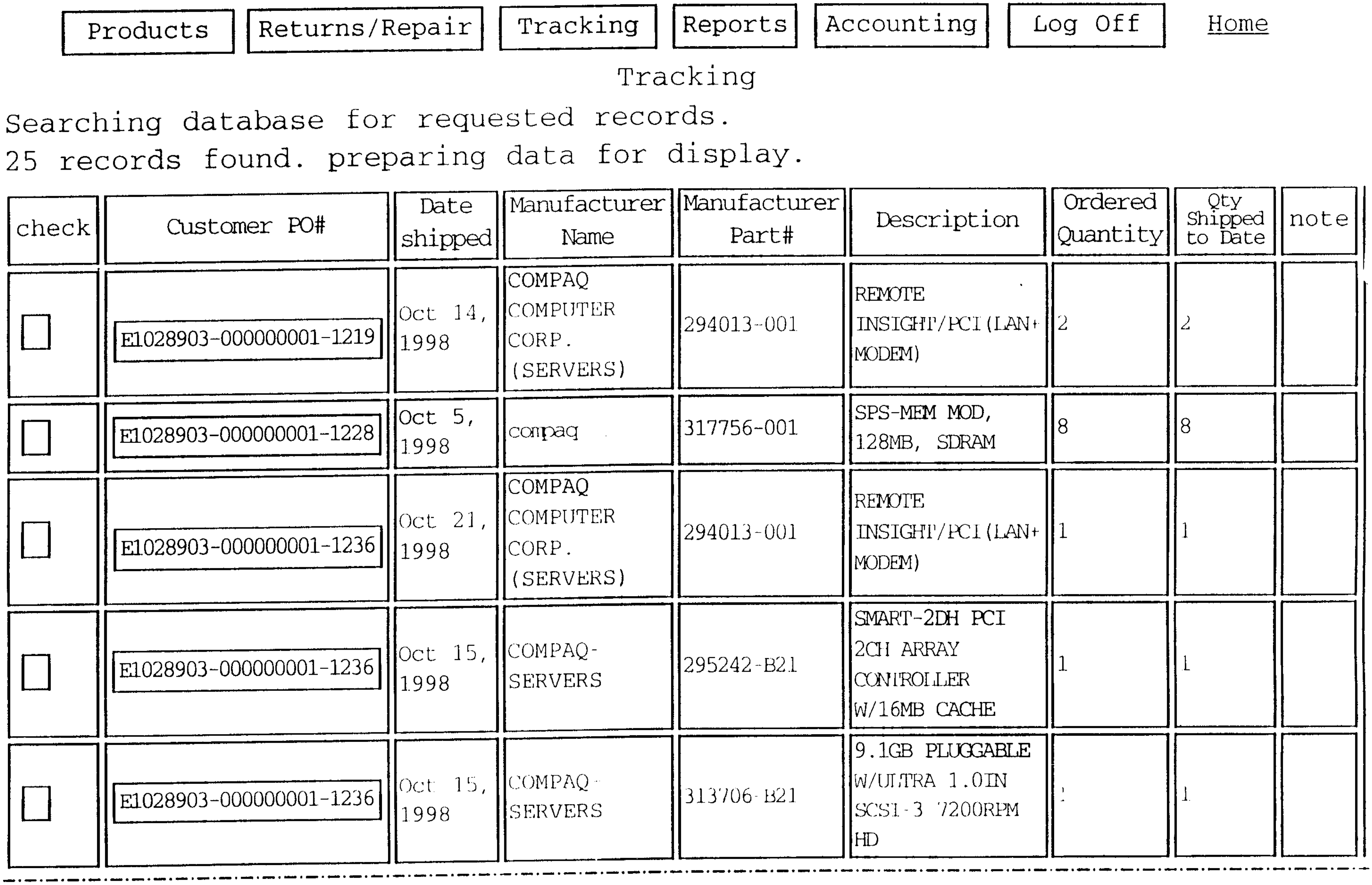
and: select month ▽ select month ▽ select month ▽

Sort By: Manufacturer○ Date○ PO#○

FIG. 30

FIG. 31





Tracking

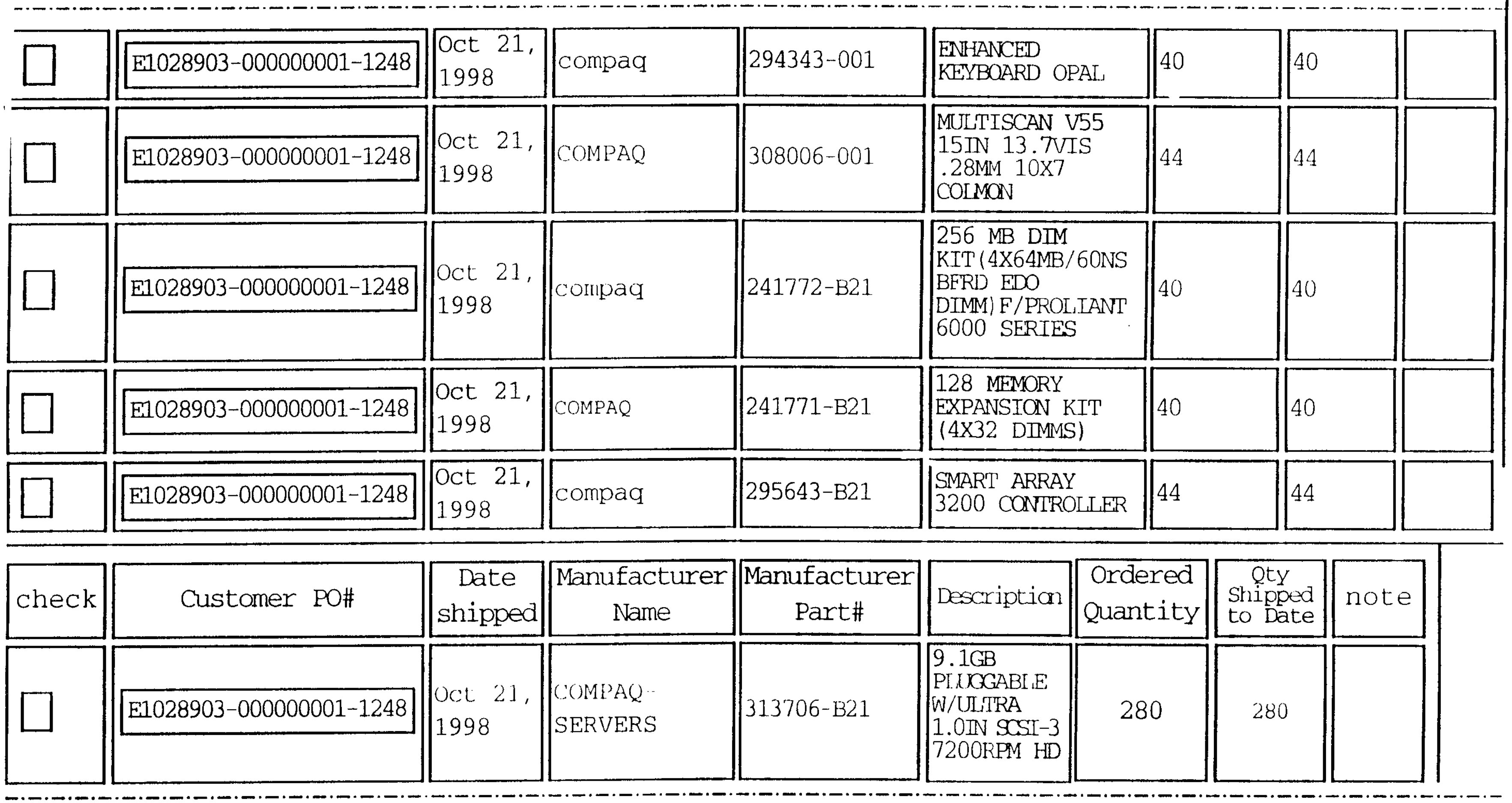
Searching database for requested records.
25 records found. preparing data for display.

check	Customer PO#	Date shipped	Manufacturer Name	Manufacturer Part#	Description	Ordered Quantity	Qty Shipped to Date	note
☐	E1028903-000000001-1219	Oct 14, 1998	COMPAQ COMPUTER CORP. (SERVERS)	294013-001	REMOTE INSIGHT/PCI (LAN+ MODEM)	2	2	
☐	E1028903-000000001-1228	Oct 5, 1998	compaq	317756-001	SPS-MEM MOD, 128MB, SDRAM	8	8	
☐	E1028903-000000001-1236	Oct 21, 1998	COMPAQ COMPUTER CORP. (SERVERS)	294013-001	REMOTE INSIGHT/PCI (LAN+ MODEM)	1	1	
☐	E1028903-000000001-1236	Oct 15, 1998	COMPAQ-SERVERS	295242-B21	SMART-2DH PCI 2CH ARRAY CONTROLLER W/16MB CACHE	1	1	
☐	E1028903-000000001-1236	Oct 15, 1998	COMPAQ-SERVERS	313706-B21	9.1GB PLUGGABLE W/ULTRA 1.0IN SCSI-3 7200RPM HD	1	1	

FIG. 31A

☐	E1028903-000000001-1236	Oct 15, 1998	COMPAQ-SERVERS	272577-001	4.3GB PLUGGABLE W/ULTRA 1.0IN 7200RP, SCSI-3 HD	2	2	
☐	E1028903-000000001-1236	Oct 15, 1998	COMPAQ SERVERS	169470-B21	6/200 512K PROC OPT KIT PROLIANT 6500,7000	3	3	
☐	E1028903-000000001-1236	Oct 21, 1998	COMPAQ SERVERS	241700-001	PROLIANT 6500 6/200 128MB M1-512K NOHD RM FS 16XCD	1	1	
☐	E1028903-000000001-1235	Oct 21, 1998	compaq	188491-001	KIT,SPS-GUIDE, MAIN&SVC FOR TOWER PROLIANT 4500	1	1	
☐	E1028903-000000001-1248	Oct 21, 1998	COMPAQ	169467-001	RACK TO TOWER CONVERSION KIT FOR PROLIANT 6500	7	7	
☐	E1028903-000000001-1248	Oct 21, 1998	COMPAQ COMPUTER CORP. (SERVER)	294013-001	REMOTE INSIGHT/PCI(LAN+ MODEM)	5	5	
☐	E1028903-000000001-1248	Oct 21, 1998	compaq	143315-B21	COMPAQ MOUSE OPAL	20	20	
☐	E1028903-000000001-1248	Oct 21, 1998	compaq	242521-B21	35/70GB EXT DLT TAPE DRIVE SCSI3 W/CABLE	4	4	
☐	E1028903-000000001-1248	Oct 28, 1998	COMPAQ	169467-001	RACK TO TOWER CONVERSION KIT FOR PROLIANT 6500	33	33	

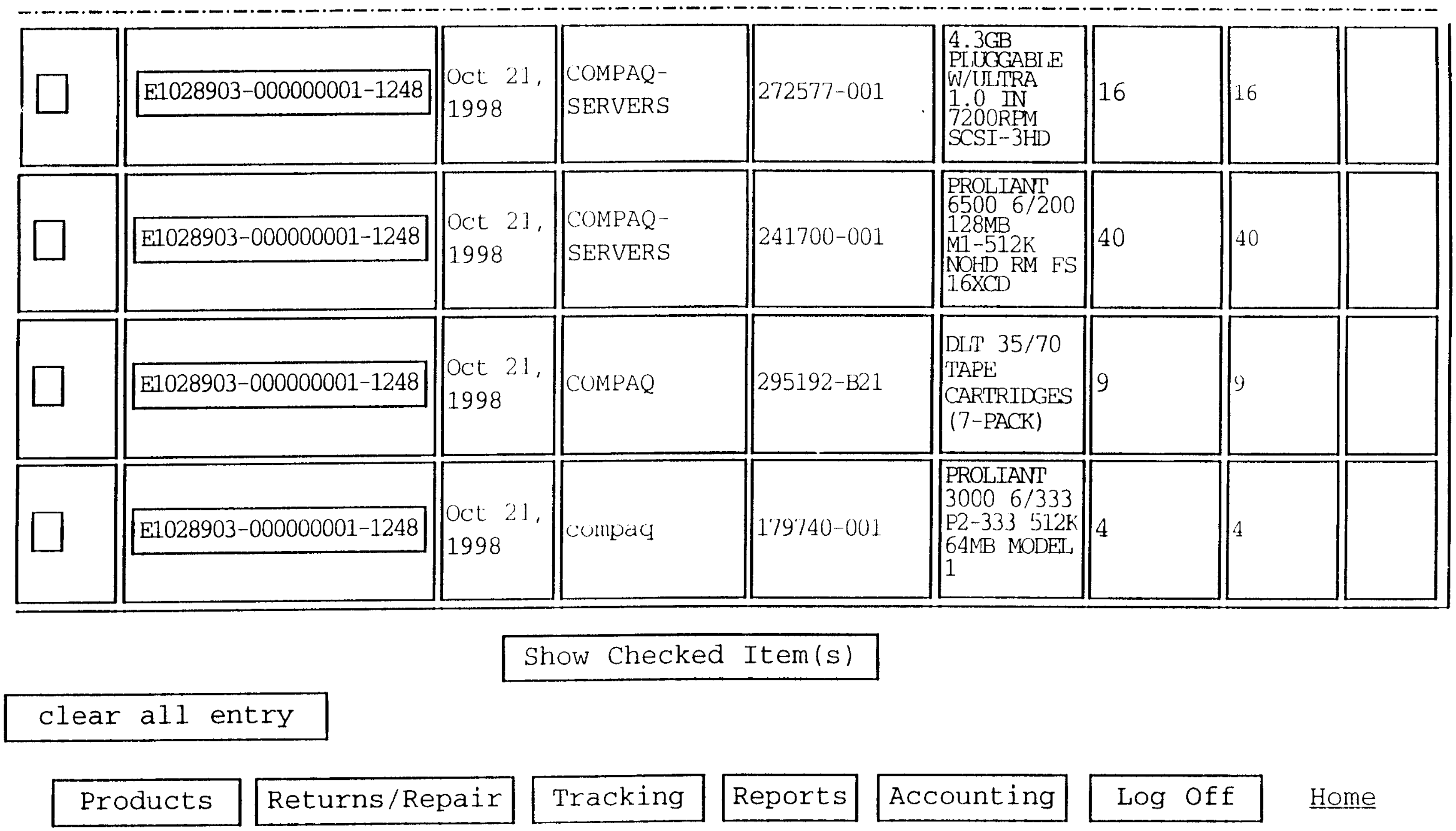
FIG. 31B



☐	E1028903-000000001-1248	Oct 21, 1998	compaq	294343-001	ENHANCED KEYBOARD OPAL	40	40	
☐	E1028903-000000001-1248	Oct 21, 1998	COMPAQ	308006-001	MULTISCAN V55 15IN 13.7VIS .28MM 10X7 COLMON	44	44	
☐	E1028903-000000001-1248	Oct 21, 1998	compaq	241772-B21	256 MB DIM KIT(4X64MB/60NS BFRD EDO DIMM)F/PROLIANT 6000 SERIES	40	40	
☐	E1028903-000000001-1248	Oct 21, 1998	COMPAQ	241771-B21	128 MEMORY EXPANSION KIT (4X32 DIMMS)	40	40	
☐	E1028903-000000001-1248	Oct 21, 1998	compaq	295643-B21	SMART ARRAY 3200 CONTROLLER	44	44	

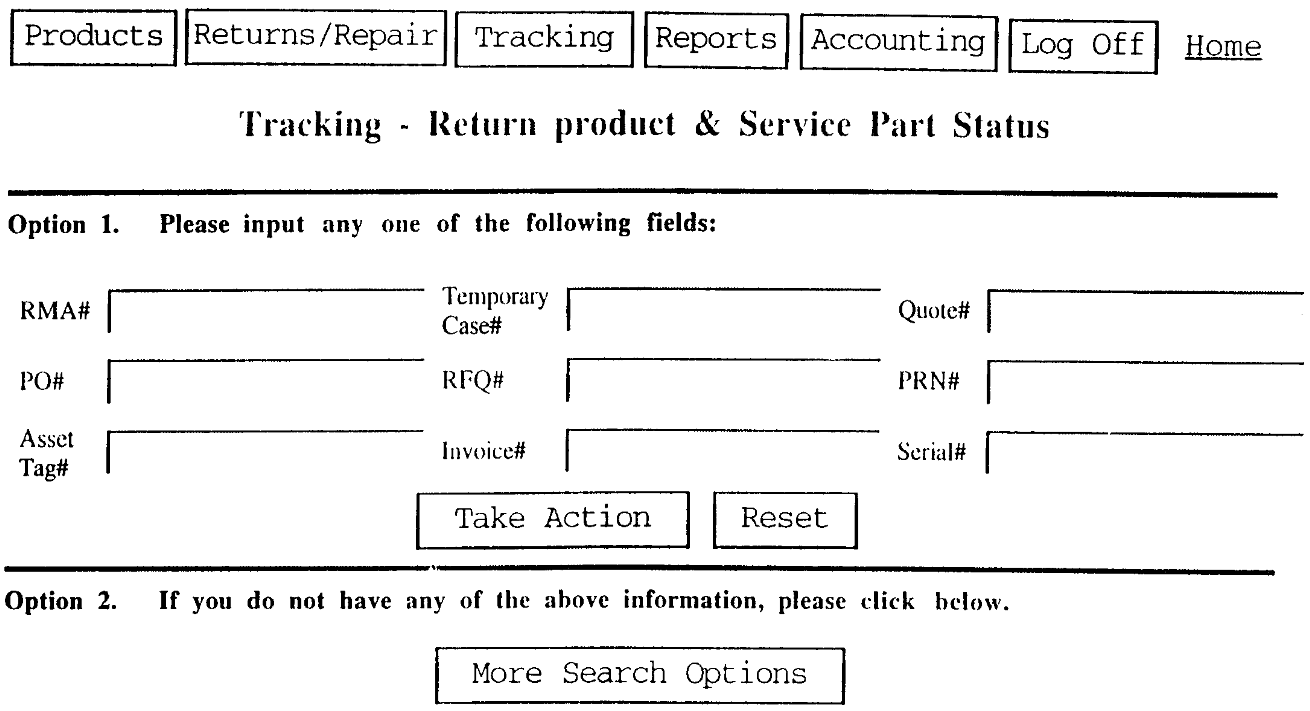
check	Customer PO#	Date shipped	Manufacturer Name	Manufacturer Part#	Description	Ordered Quantity	Qty Shipped to Date	note
☐	E1028903-000000001-1248	Oct 21, 1998	COMPAQ-SERVERS	313706-B21	9.1GB PLUGGABLE W/ULTRA 1.0IN SCSI-3 7200RPM HD	280	280	

FIG. 31C



☐	E1028903-000000001-1248	Oct 21, 1998	COMPAQ-SERVERS	272577-001	4.3GB PLUGGABLE W/ULTRA 1.0 IN 7200RPM SCSI-3HD	16	16	
☐	E1028903-000000001-1248	Oct 21, 1998	COMPAQ-SERVERS	241700-001	PROLIANT 6500 6/200 128MB M1-512K NOHD RM FS 16XCD	40	40	
☐	E1028903-000000001-1248	Oct 21, 1998	COMPAQ	295192-B21	DLT 35/70 TAPE CARTRIDGES (7-PACK)	9	9	
☐	E1028903-000000001-1248	Oct 21, 1998	compaq	179740-001	PROLIANT 3000 6/333 P2-333 512K 64MB MODEL 1	4	4	

FIG. 31D

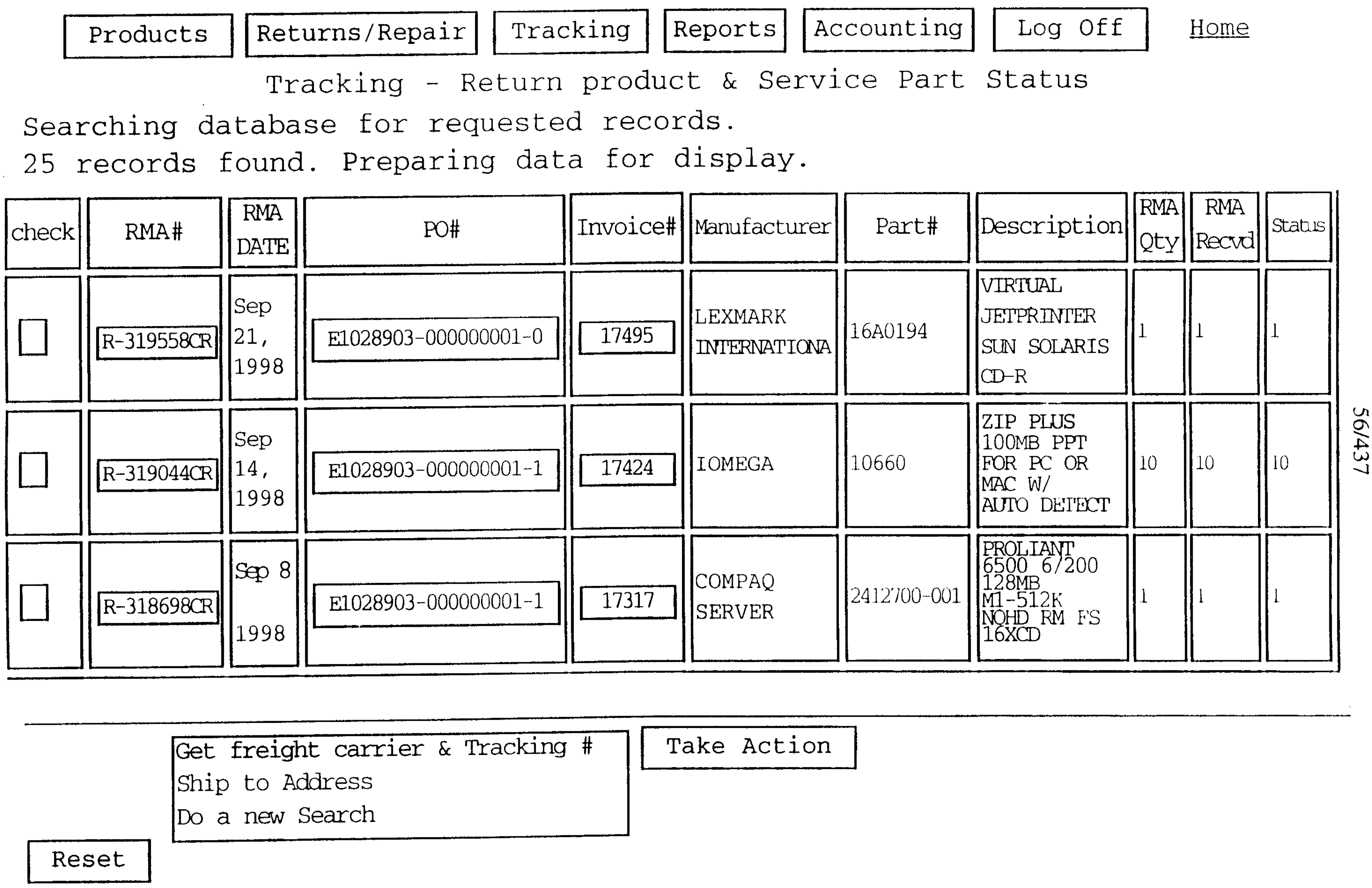


Tracking - Return product & Service Part Status

Option 1. Please input any one of the following fields:

Option 2. If you do not have any of the above information, please click below.

FIG. 32

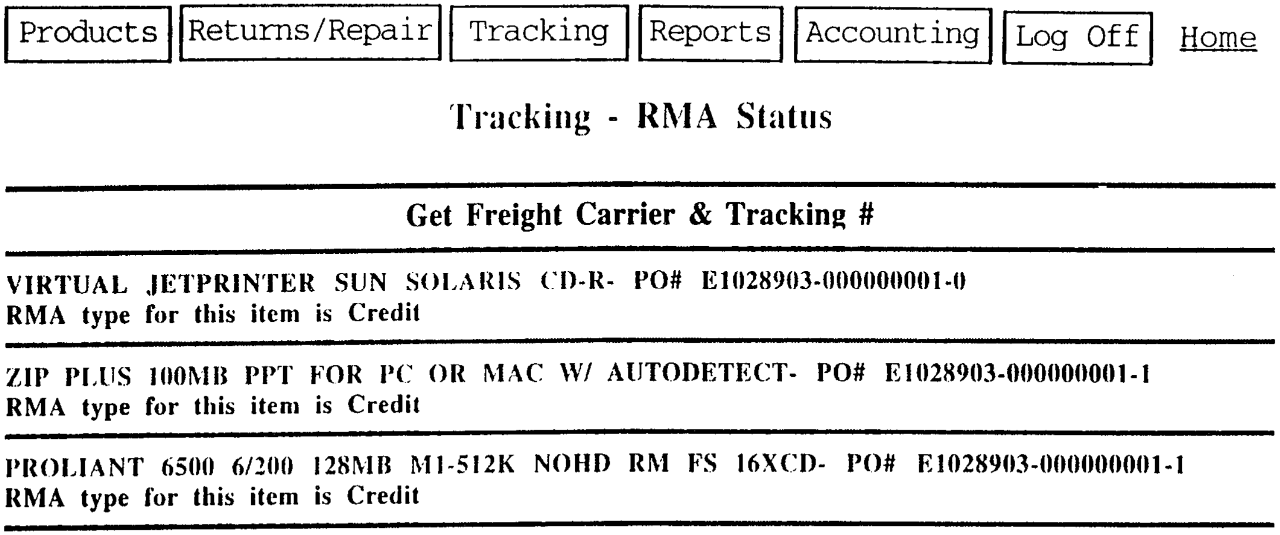


Tracking - Return product & Service Part Status

Searching database for requested records.
25 records found. Preparing data for display.

check	RMA#	RMA DATE	PO#	Invoice#	Manufacturer	Part#	Description	RMA Qty	RMA Recvd	Status
☐	R-319558CR	Sep 21, 1998	E1028903-000000001-0	17495	LEXMARK INTERNATIONA	16A0194	VIRTUAL JETPRINTER SUN SOLARIS CD-R	1	1	1
☐	R-319044CR	Sep 14, 1998	E1028903-000000001-1	17424	IOMEGA	10660	ZIP PLUS 100MB PPT FOR PC OR MAC W/ AUTO DETECT	10	10	10
☐	R-318698CR	Sep 8 1998	E1028903-000000001-1	17317	COMPAQ SERVER	2412700-001	PROLIANT 6500 6/200 128MB M1-512K NOHD RM FS 16XCD	1	1	1

FIG. 33



Tracking - RMA Status

Get Freight Carrier & Tracking #

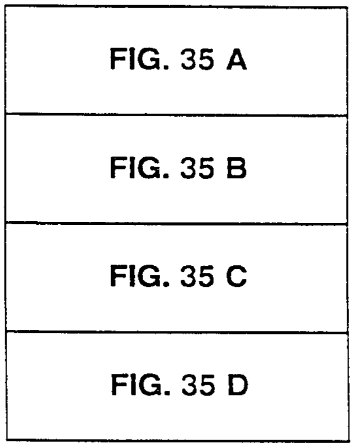
VIRTUAL JETPRINTER SUN SOLARIS CD-R- PO# E1028903-000000001-0
RMA type for this item is Credit

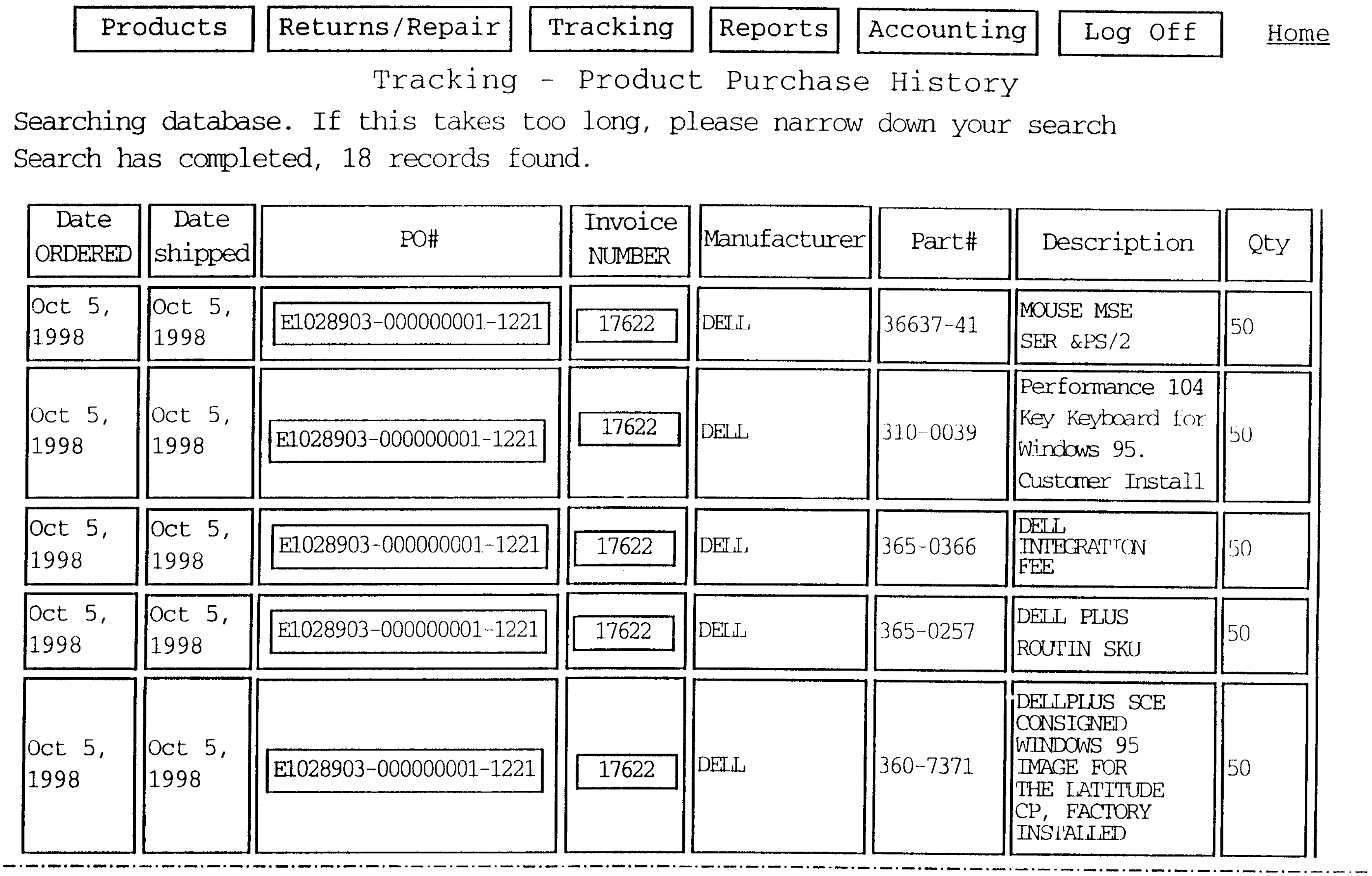
ZIP PLUS 100MB PPT FOR PC OR MAC W/ AUTODETECT- PO# E1028903-000000001-1
RMA type for this item is Credit

PROLIANT 6500 6/200 128MB M1-512K NOHD RM FS 16XCD- PO# E1028903-000000001-1
RMA type for this item is Credit

FIG. 34

FIG. 35





Tracking - Product Purchase History

Searching database. If this takes too long, please narrow down your search
Search has completed, 18 records found.

Date ORDERED	Date shipped	PO#	Invoice NUMBER	Manufacturer	Part#	Description	Qty
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	36637-41	MOUSE MSE SER &PS/2	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	310-0039	Performance 104 Key Keyboard for Windows 95. Customer Install	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	365-0366	DELL INTEGRATION FEE	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	365-0257	DELL PLUS ROUTIN SKU	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	360-7371	DELLPLUS SCE CONSIGNED WINDOWS 95 IMAGE FOR THE LATITUDE CP, FACTORY INSTALLED	50

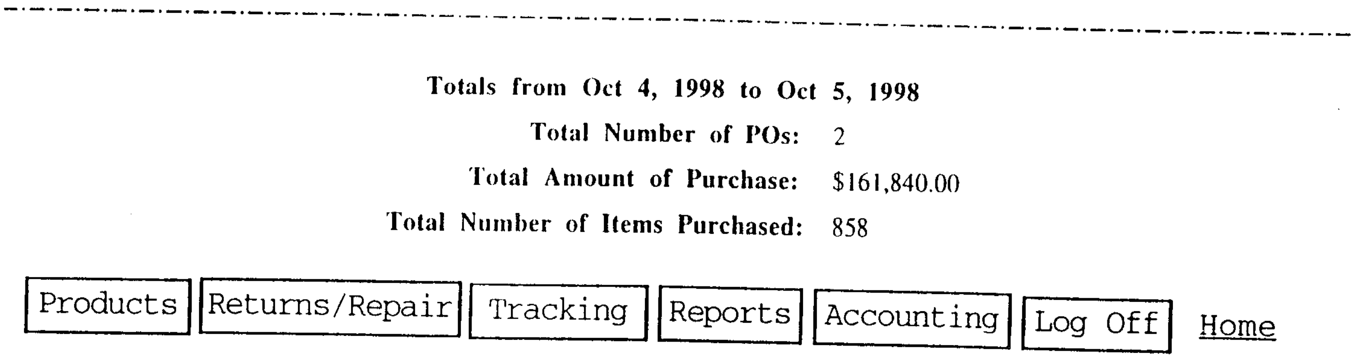
FIG. 35A

Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	360-5087	DP CONSIGNED LABEL SCE	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	360-4801	DELL PLUS INFO SKU MANUAL SFTWARE INSTALLATION	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	360-3527	DELL PLUS INFO, PRINT LABEL LARGE	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	900-5112	Next Business Day, Parts Delivery Service, Years 2 & 3 Included	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	900-1950	Selectcare, Initial Year, Next Business Day On-Site Service Contract, BSC*	50

FIG. 35B

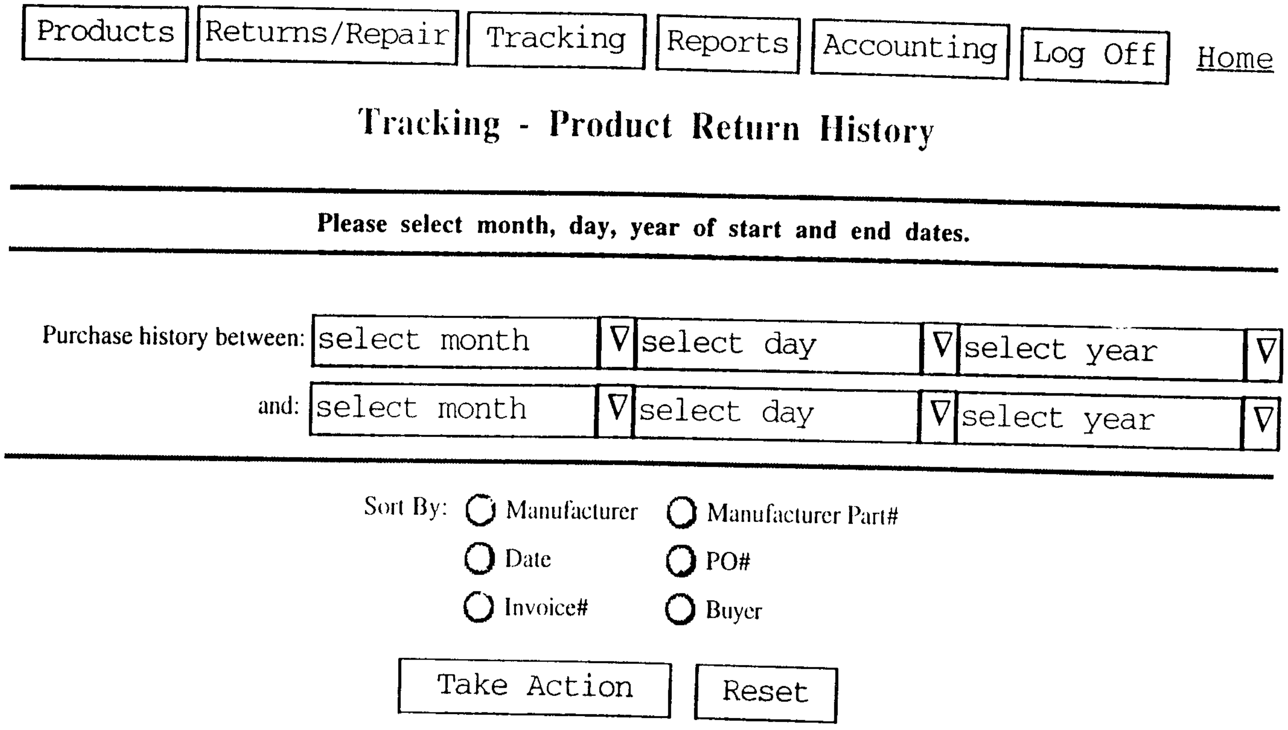
Date Ordered	Date shipped	PO#	Invoice Number	Manufacturer	Part#	Description	Qty
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	420-0541	WIN95, W/CD all Latitude CP Factory Install	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	340-2166	6.4 GB HD, 12.5MM LATITUDE CP FACTORY INSTALL	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	313-0236	20X CD ROM, INTERNAL/EXTERNAL LATITUDE CP FACTORY INSTALL	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	311-0342	64MB, 1DIMM, EDO LATITUDE CP FACTORY INSTALLED	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	310-4552	Advanced Port Replicator with Monitor Stand, Lat, CP, Factory Installed	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	310-3043	No Modem For All Dell Notebook	50
Oct 5, 1998	Oct 5, 1998	E1028903-000000001-1221	17622	DELL	220-0386	LATITUDE CP M233ST, 12.1" SVGA, TFT, FACTORY INSTALLED	50
Oct 2, 1998	Oct 5, 1998	E1028903-000000001-1221	17630	compaq	317756-001	SPS-MEM MOD, 128MB, SDRAM	8

FIG. 35C



Totals from Oct 4, 1998 to Oct 5, 1998
Total Number of POs: 2
Total Amount of Purchase: $161,840.00
Total Number of Items Purchased: 858

FIG. 35 D



Tracking - Product Return History

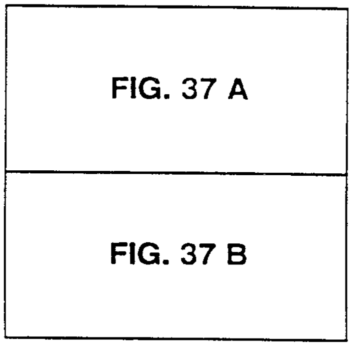
Please select month, day, year of start and end dates.

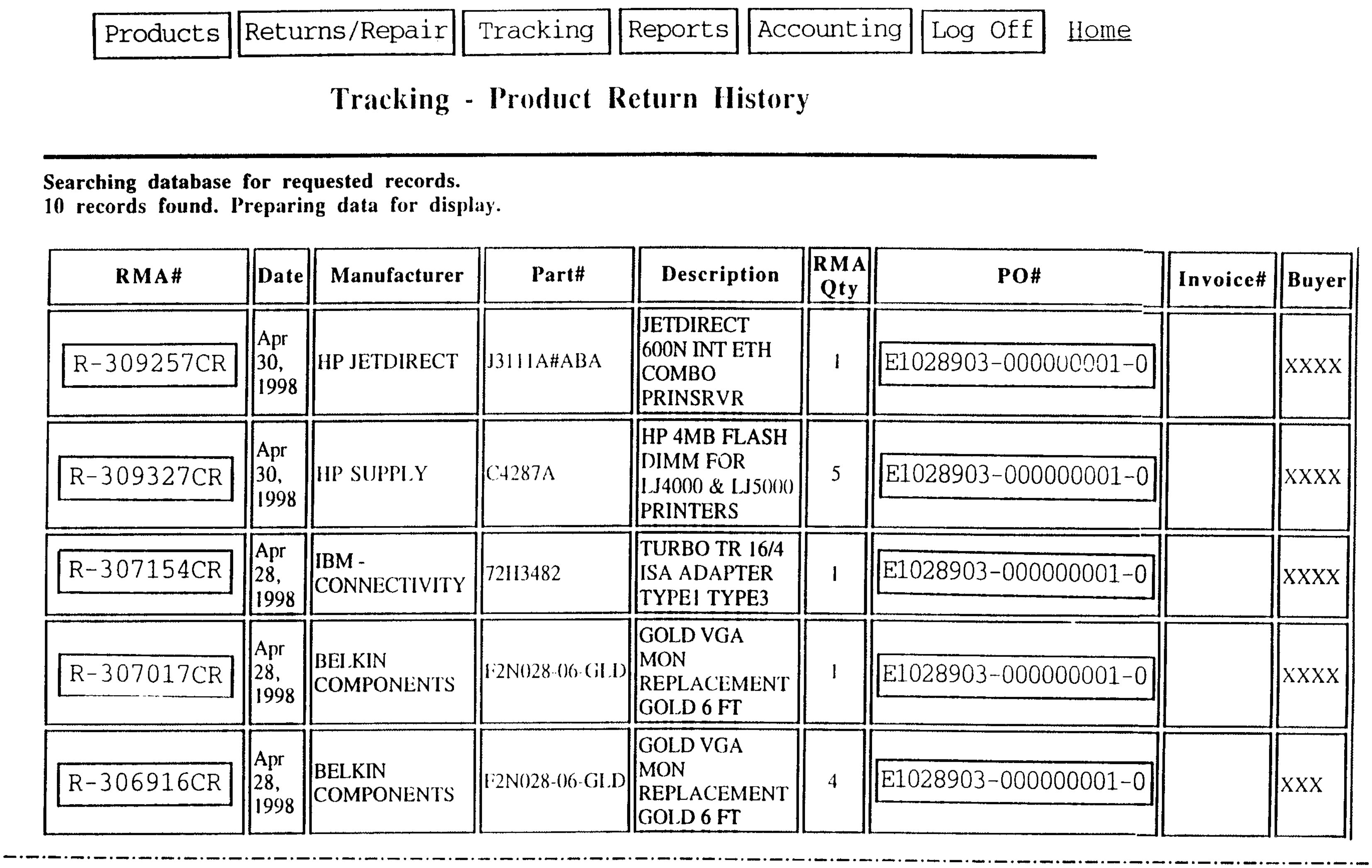
Purchase history between: select month ▽ select day ▽ select year ▽
and: select month ▽ select day ▽ select year ▽

Sort By: ○ Manufacturer ○ Manufacturer Part#
○ Date ○ PO#
○ Invoice# ○ Buyer

FIG. 36

FIG. 37





Tracking - Product Return History

Searching database for requested records.
10 records found. Preparing data for display.

RMA#	Date	Manufacturer	Part#	Description	RMA Qty	PO#	Invoice#	Buyer
R-309257CR	Apr 30, 1998	HP JETDIRECT	J3111A#ABA	JETDIRECT 600N INT ETH COMBO PRINSRVR	1	E1028903-000000001-0		XXXX
R-309327CR	Apr 30, 1998	HP SUPPLY	C4287A	HP 4MB FLASH DIMM FOR LJ4000 & LJ5000 PRINTERS	5	E1028903-000000001-0		XXXX
R-307154CR	Apr 28, 1998	IBM - CONNECTIVITY	72H3482	TURBO TR 16/4 ISA ADAPTER TYPE1 TYPE3	1	E1028903-000000001-0		XXXX
R-307017CR	Apr 28, 1998	BELKIN COMPONENTS	F2N028-06-GLD	GOLD VGA MON REPLACEMENT GOLD 6 FT	1	E1028903-000000001-0		XXXX
R-306916CR	Apr 28, 1998	BELKIN COMPONENTS	F2N028-06-GLD	GOLD VGA MON REPLACEMENT GOLD 6 FT	4	E1028903-000000001-0		XXX

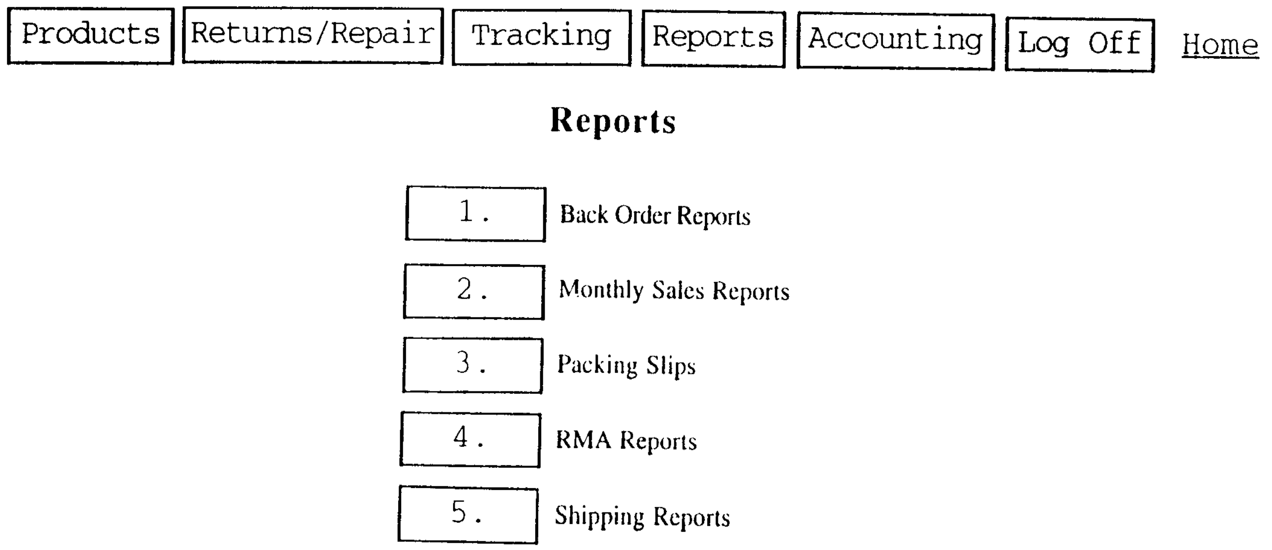
FIG. 37 A

R-306885CR	Apr 28, 1998	BELKIN COMPONENTS	F2N017	AT/PS2 KYBD CONVRT	8	E1028903-000000001-0		XXXX
R-306684CR	Apr 28, 1998	3COM CLIENT ACCESS	3C900-TPO	ETHERLINK XL ETH PCI RJ45 NIC	100	E1028903-000000001-0		xxxx
R-306478XSM	Apr 23, 1998	HP DESK	C5876A#ABA	DESKJET 890CXI COL INKJETPR 9PPM 600DPI	1	E1028903-000000001-0		ANITA
R-306734CR	Apr 23, 1998	BELKIN COMPONENTS	F2N966-06	SCSI PERIPH CABLE DB50M/M 6 FT	1	E1028903-000000001-0		ANITA
R-305814CR	Apr 13, 1998	MICROSOFT	077-756V700	ACCESS DEV KIT V7.0 CD W95	1	E1028903-000000001-0		xxxx

Totals from Apr 1, 1998 to May 1, 1998

Total Number of Returns:	10
Total Amount of Returns:	$13,010.00
Total Number of Items Returned:	123

FIG. 37 B

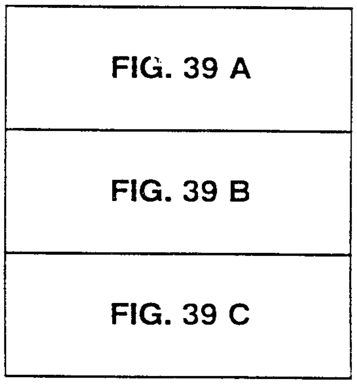


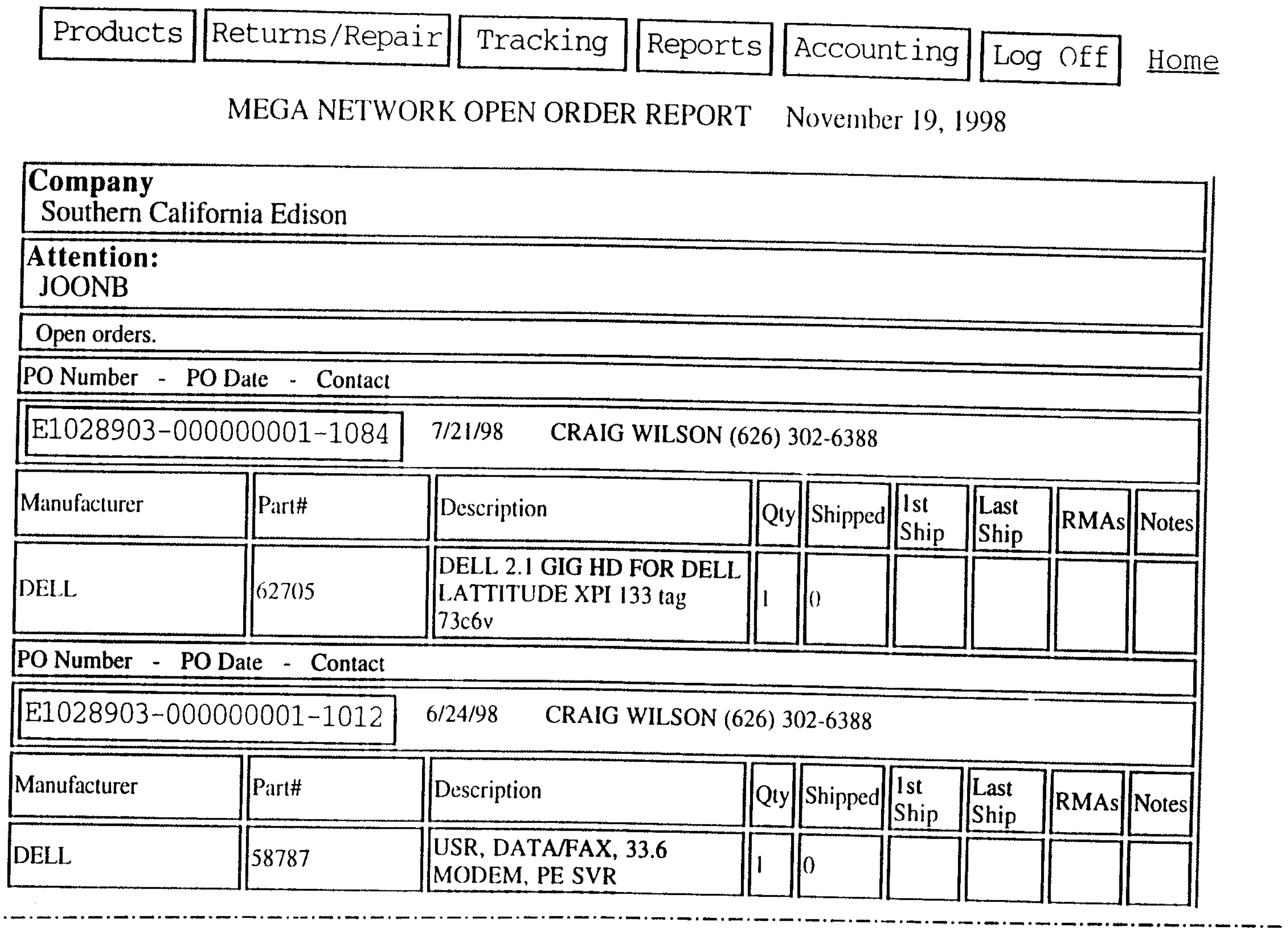
Reports

1. Back Order Reports
2. Monthly Sales Reports
3. Packing Slips
4. RMA Reports
5. Shipping Reports

FIG. 38

FIG. 39





MEGA NETWORK OPEN ORDER REPORT November 19, 1998

Company
Southern California Edison

Attention:
JOONB

Open orders.

PO Number - PO Date - Contact

E1028903-000000001-1084 7/21/98 **CRAIG WILSON (626) 302-6388**

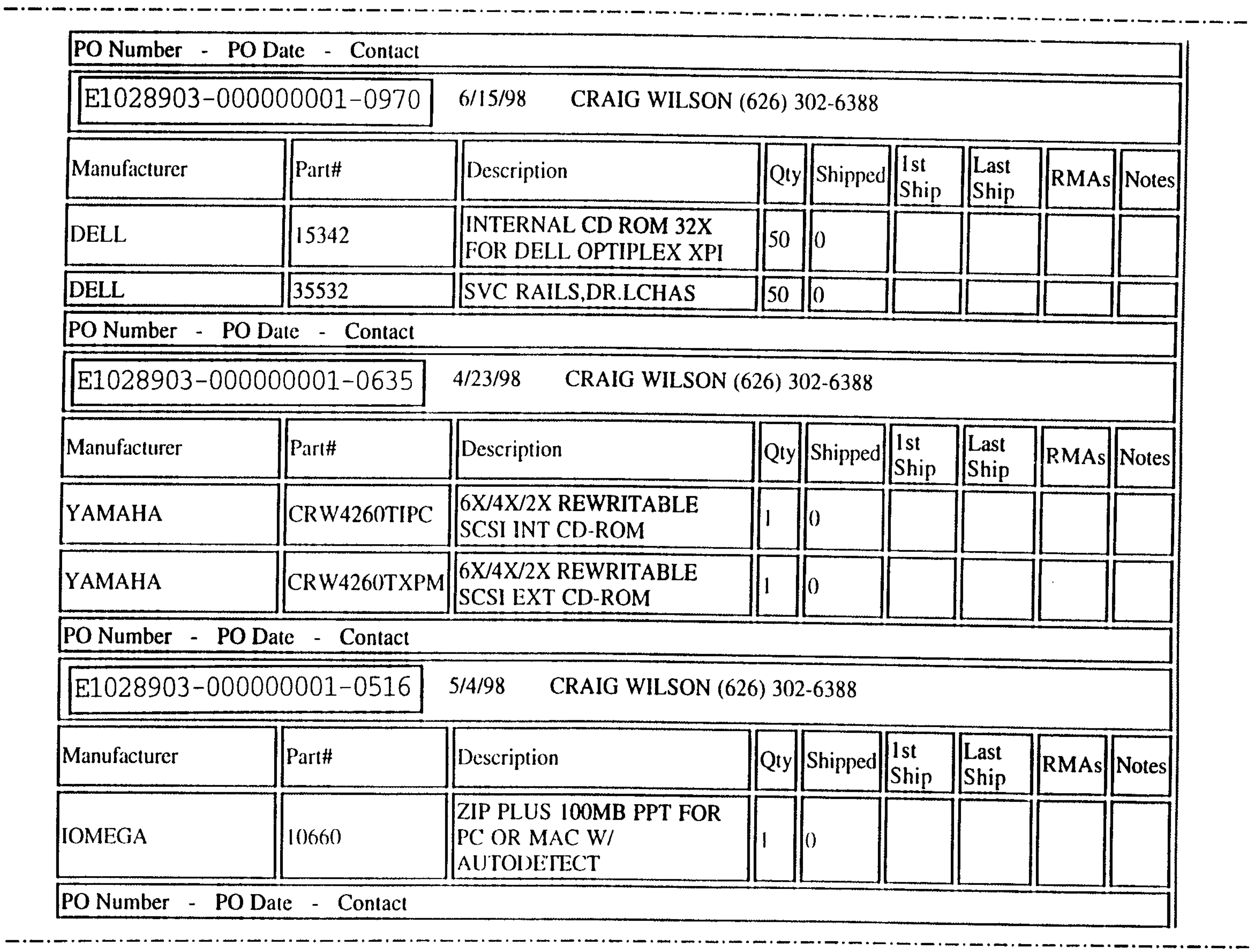
Manufacturer	Part#	Description	Qty	Shipped	1st Ship	Last Ship	RMAs	Notes
DELL	62705	**DELL 2.1 GIG HD FOR DELL LATTITUDE XPI 133 tag 73c6v**	1	0				

PO Number - PO Date - Contact

E1028903-000000001-1012 6/24/98 **CRAIG WILSON (626) 302-6388**

Manufacturer	Part#	Description	Qty	Shipped	1st Ship	Last Ship	RMAs	Notes
DELL	58787	**USR, DATA/FAX, 33.6 MODEM, PE SVR**	1	0				

FIG. 39 A



PO Number - PO Date - Contact

E1028903-000000001-0970 6/15/98 CRAIG WILSON (626) 302-6388

Manufacturer	Part#	Description	Qty	Shipped	1st Ship	Last Ship	RMAs	Notes
DELL	15342	INTERNAL CD ROM 32X FOR DELL OPTIPLEX XPI	50	0				
DELL	35532	SVC RAILS,DR.LCHAS	50	0				

PO Number - PO Date - Contact

E1028903-000000001-0635 4/23/98 CRAIG WILSON (626) 302-6388

Manufacturer	Part#	Description	Qty	Shipped	1st Ship	Last Ship	RMAs	Notes
YAMAHA	CRW4260TIPC	6X/4X/2X REWRITABLE SCSI INT CD-ROM	1	0				
YAMAHA	CRW4260TXPM	6X/4X/2X REWRITABLE SCSI EXT CD-ROM	1	0				

PO Number - PO Date - Contact

E1028903-000000001-0516 5/4/98 CRAIG WILSON (626) 302-6388

Manufacturer	Part#	Description	Qty	Shipped	1st Ship	Last Ship	RMAs	Notes
IOMEGA	10660	ZIP PLUS 100MB PPT FOR PC OR MAC W/ AUTODETECT	1	0				

PO Number - PO Date - Contact

FIG. 39 B

E1028903-000000001-1304 11/5/98 CRAIG WILSON (626) 302-6388

Manufacturer	Part#	Description	Qty	Shipped	1st Ship	Last Ship	RMAs	Notes
COMPAQ SERVERS	169470-B21	6/200 512K PROC OPT KIT PROLIANT 6500 7000	9	0				
COMPAQ SERVERS	241773-B21	512MB KIT (4X128MB DIMMS) 60NS EDO ECC PROLIANT	2	0				
COMPAQ - SERVERS	303607-B21	RACK KEYBOARD DRAWER SHELF KIT	5	0				
COMPAQ COMPUTER CORP. (SERVERS)	294013-001	REMOTE INSIGHT/PCI (LAN + MODEM)	13	0				

FIG. 39 C

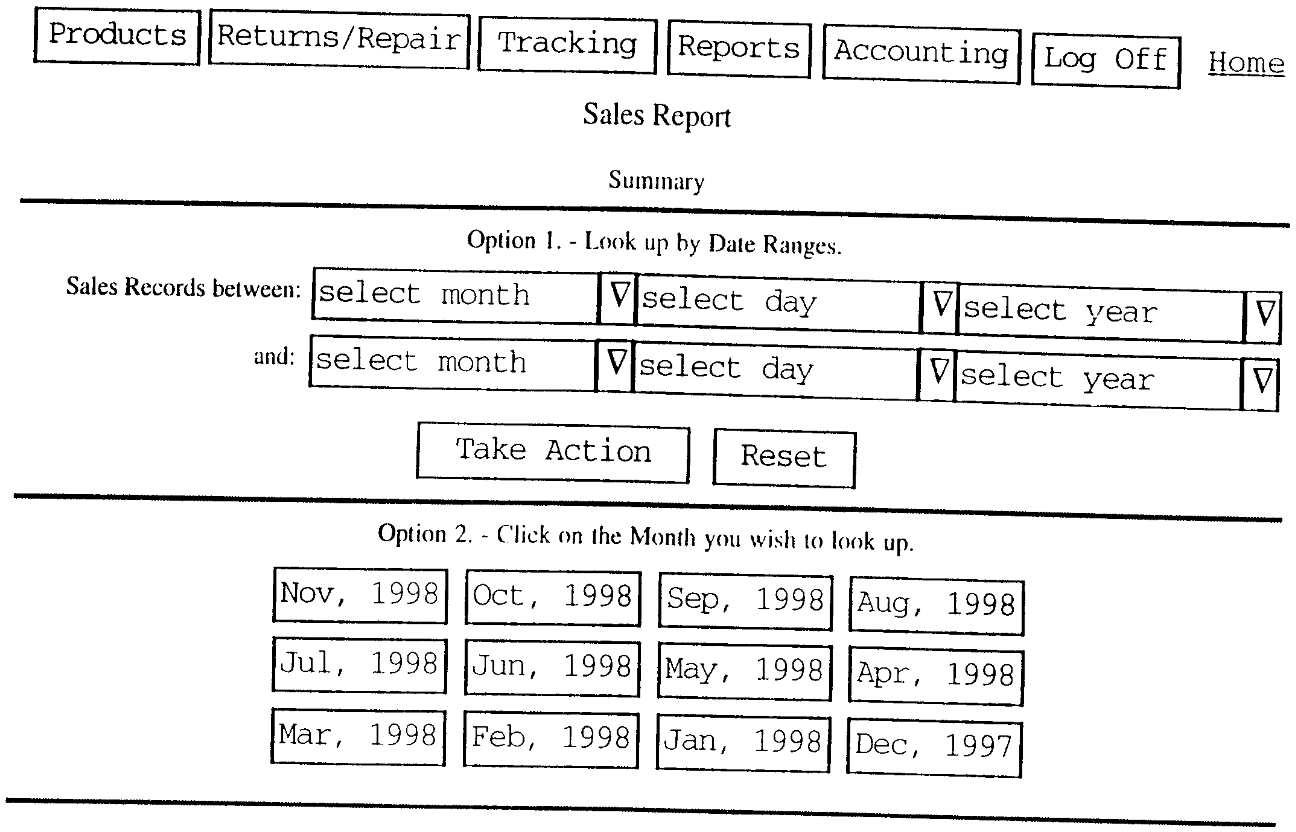
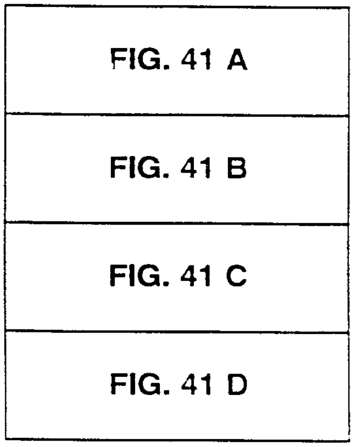
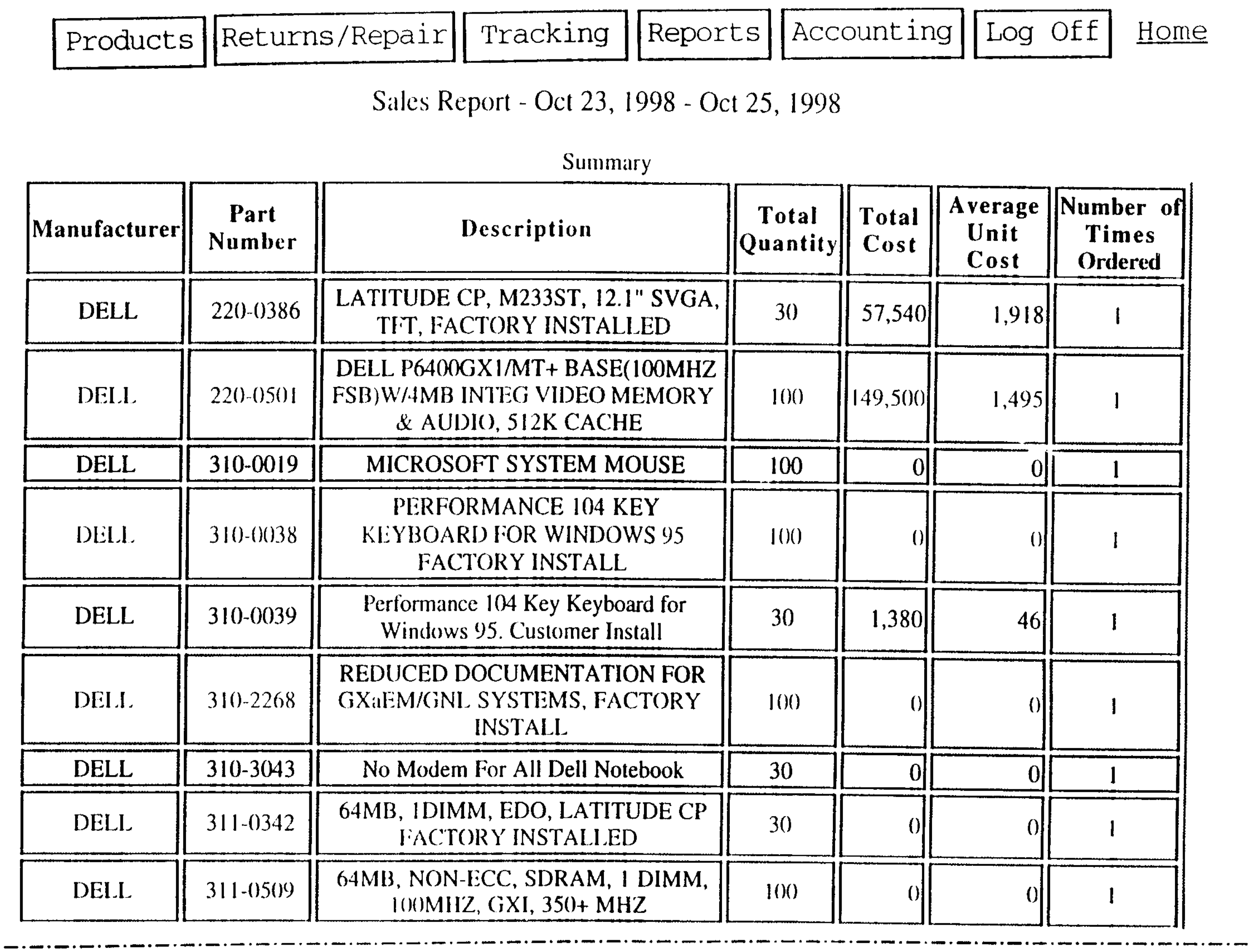

Products
Returns/Repair
Tracking
Reports
Accounting
Log Off
Home
Sales Report
Summary
Option 1. - Look up by Date Ranges.
Sales Records between:
select month ∇
select day ∇
select year ∇
and:
select month ∇
select day ∇
select year ∇
Take Action
Reset
Option 2. - Click on the Month you wish to look up.
Nov, 1998
Oct, 1998
Sep, 1998
Aug, 1998
Jul, 1998
Jun, 1998
May, 1998
Apr, 1998
Mar, 1998
Feb, 1998
Jan, 1998
Dec, 1997

FIG. 40

FIG. 41





Sales Report - Oct 23, 1998 - Oct 25, 1998

Summary

Manufacturer	Part Number	Description	Total Quantity	Total Cost	Average Unit Cost	Number of Times Ordered
DELL	220-0386	LATITUDE CP, M233ST, 12.1" SVGA, TFT, FACTORY INSTALLED	30	57,540	1,918	1
DELL	220-0501	DELL P6400GX1/MT+ BASE(100MHZ FSB)W/4MB INTEG VIDEO MEMORY & AUDIO, 512K CACHE	100	149,500	1,495	1
DELL	310-0019	MICROSOFT SYSTEM MOUSE	100	0	0	1
DELL	310-0038	PERFORMANCE 104 KEY KEYBOARD FOR WINDOWS 95 FACTORY INSTALL	100	0	0	1
DELL	310-0039	Performance 104 Key Keyboard for Windows 95. Customer Install	30	1,380	46	1
DELL	310-2268	REDUCED DOCUMENTATION FOR GXaEM/GNL SYSTEMS, FACTORY INSTALL	100	0	0	1
DELL	310-3043	No Modem For All Dell Notebook	30	0	0	1
DELL	311-0342	64MB, 1DIMM, EDO, LATITUDE CP FACTORY INSTALLED	30	0	0	1
DELL	311-0509	64MB, NON-ECC, SDRAM, 1 DIMM, 100MHZ, GXI, 350+ MHZ	100	0	0	1

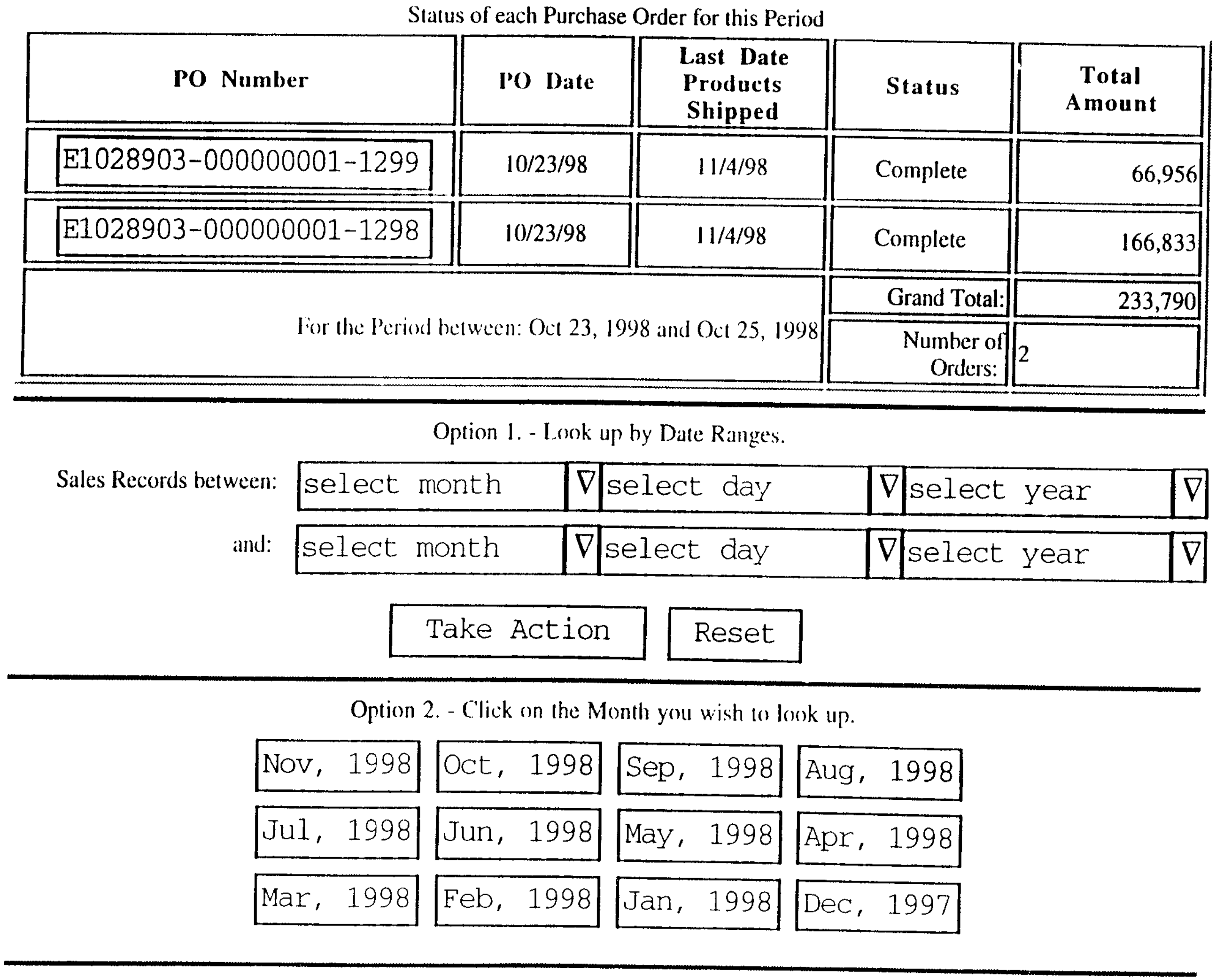
FIG. 41 A

DELL	311-0515	64MB, NON-ECC,SDRAM, 1 DIMM, UPGRADE, GX1, 350+MHZ, FACTORY INSTALL	100	0	0	1
DELL	313-0236	20X CD ROM, INTERNAL/EXTERNAL LATITUDE CP FACTORY INSTALL	30	0	0	1
DELL	313-0524	14-32X CD ROM, IDE, FACTORY INSTALL	100	0	0	1
DELL	320-3316	MONITOR OPTION-NONE	100	0	0	1
DELL	340-0701	3.5" 1.44MB FLOPPY DRIVE, FACTORY INSTALL	100	0	0	1
DELL	340-0740	6.4GB IDE HARD DRIVE, GX1, M/T, 350+ MHZ, FACTORY INSTALL	100	0	0	1
DELL	340-2166	6.4 GB HD, 12.5MM, LATITUDE CP FACTORY INSTALL	30	0	0	1
DELL	360-3527	DELL PLUS INFO, PRINT LABEL LARGE	30	0	0	
DELL	360-4801	DELL PLUS INFO SKU MANUAL SFTWARE INSTALLATION	30	0	0	1
DELL	360-5087	DP CONSIGNED LABEL SCE	30	0	0	1
DELL	360-7371	DELLPLUS SCE CONSIGNED WINDOWS 95 IMAGE FOR THE LATITUDE CP, FACTORY INSTALLED	30	0	0	1
DELL	365-0257	DELL PLUS ROUTIN SKU	30	0	0	1
DELL	365-0366	DELL INTEGRATION FEE	30	930	31	1

FIG. 41 B

DELL	420-0137	FAT32, FILE SYSTEM, WINDOWS '9X, FACTORY INSTALL	100	0	0	1
DELL	420-0541	WIN95, W/CD all Latitude CP Factory Install	30	0	0	1
DELL	420-6108	WINDOWS '95 CD ROM, OSR 2.1, FACTORY INSTALL	100	0	0	1
DELL	430-0118	Active Expansion Riser for GXiM/T Systems, 3 PCI/2 Shared/2 ISA Wake up on Lan	100	0	0	1
DELL	900-1730	SELECTCARE, NEXT BUSINESS DAY ON-SITE SERVICE , INITIAL YEAR, WANG	100	0	0	1
DELL	900-1732	SELECTCARE, NEXT BUSINESS DAY, ON-SITE SERVICE, 2 YEAT EXTENDED, WANG	100	0	0	1
DELL	900-1950	Selectcare, Initial Year, Next Business Day On-Site Service Contract, BSC*	30	0	0	1

FIG. 41 C



Status of each Purchase Order for this Period

PO Number	PO Date	Last Date Products Shipped	Status	Total Amount
E1028903-000000001-1299	10/23/98	11/4/98	Complete	66,956
E1028903-000000001-1298	10/23/98	11/4/98	Complete	166,833
For the Period between: Oct 23, 1998 and Oct 25, 1998			Grand Total:	233,790
			Number of Orders:	2

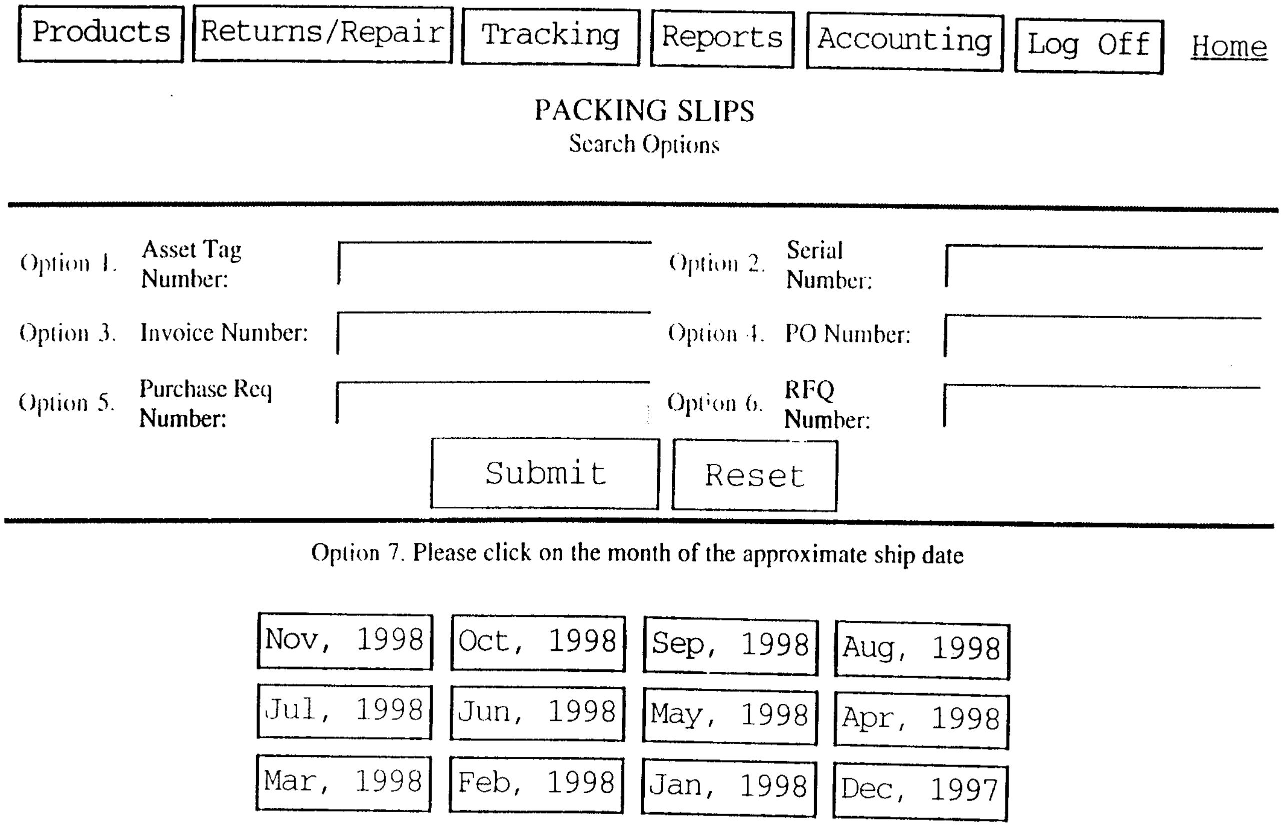
Option 1. - Look up by Date Ranges.

Sales Records between: select month ∇ select day ∇ select year ∇

and: select month ∇ select day ∇ select year ∇

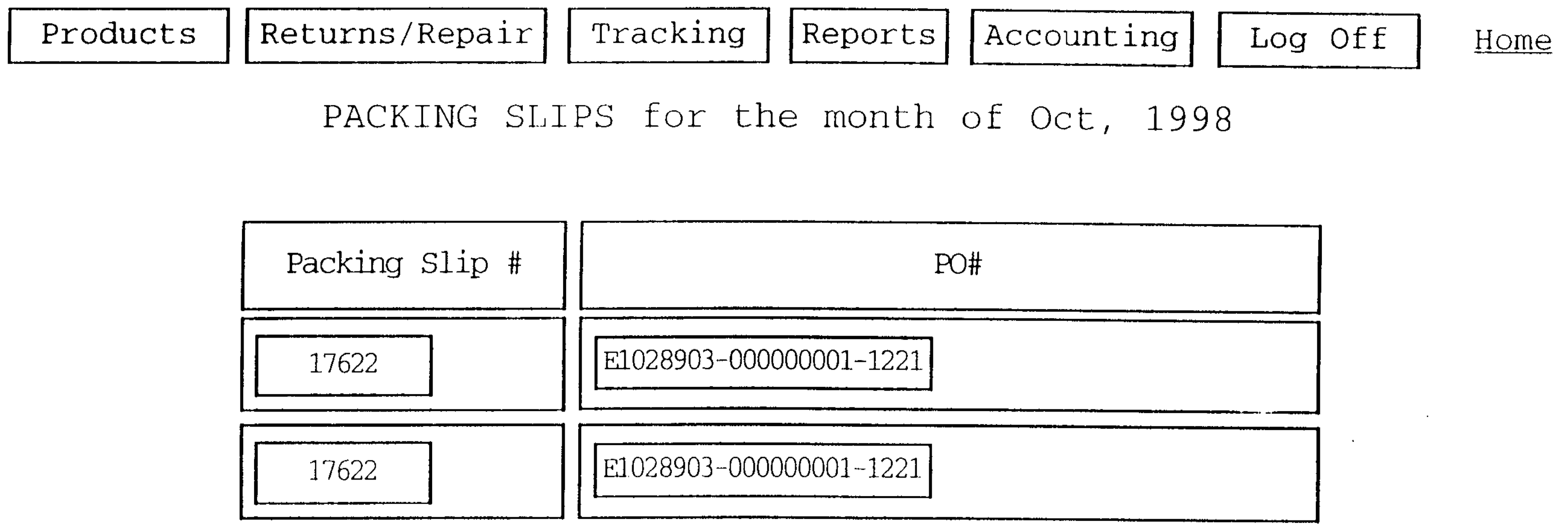
Option 2. - Click on the Month you wish to look up.

FIG. 41 D



Option 7. Please click on the month of the approximate ship date

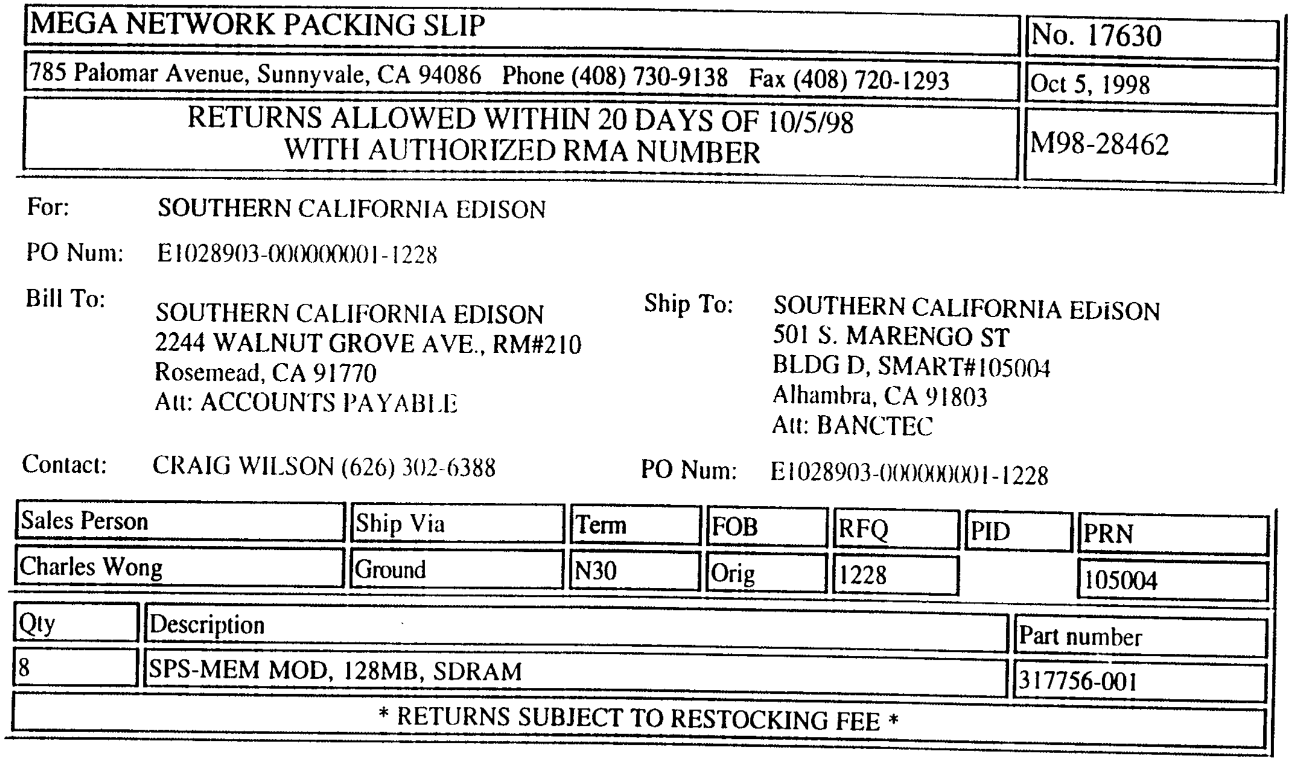
FIG. 42



PACKING SLIPS for the month of Oct, 1998

Packing Slip #	PO#
17622	E1028903-000000001-1221
17622	E1028903-000000001-1221

FIG. 43



MEGA NETWORK PACKING SLIP	No. 17630
785 Palomar Avenue, Sunnyvale, CA 94086 Phone (408) 730-9138 Fax (408) 720-1293	Oct 5, 1998
RETURNS ALLOWED WITHIN 20 DAYS OF 10/5/98 WITH AUTHORIZED RMA NUMBER	M98-28462

For: SOUTHERN CALIFORNIA EDISON

PO Num: E1028903-000000001-1228

Bill To:
SOUTHERN CALIFORNIA EDISON
2244 WALNUT GROVE AVE., RM#210
Rosemead, CA 91770
Att: ACCOUNTS PAYABLE

Ship To:
SOUTHERN CALIFORNIA EDiSON
501 S. MARENGO ST
BLDG D, SMART#105004
Alhambra, CA 91803
Att: BANCTEC

Contact: CRAIG WILSON (626) 302-6388

PO Num: E1028903-000000001-1228

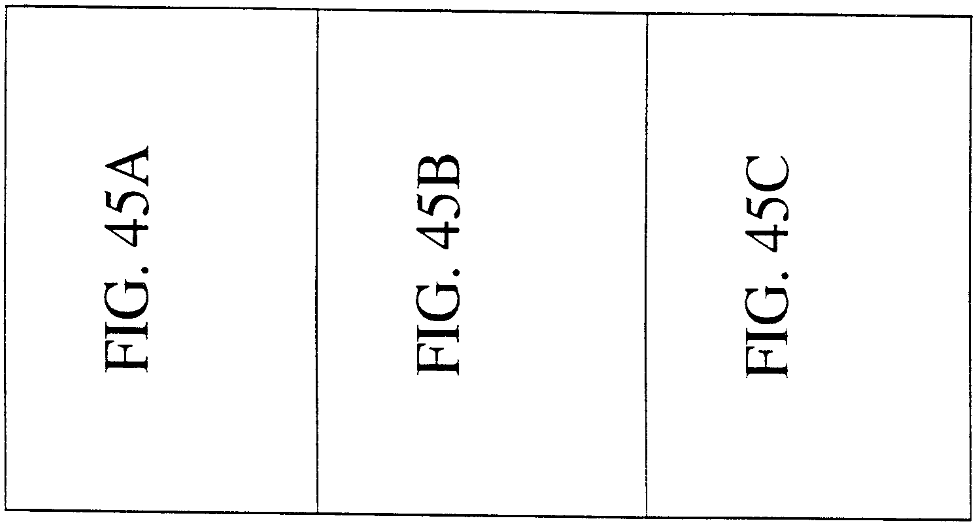
Sales Person	Ship Via	Term	FOB	RFQ	PID	PRN
Charles Wong	Ground	N30	Orig	1228		105004

Qty	Description	Part number
8	SPS-MEM MOD, 128MB, SDRAM	317756-001

* RETURNS SUBJECT TO RESTOCKING FEE *

FIG. 44

FIG. 45



		Sales		CSR		Acct.		Supervisor		Mgnt.	
		U	A	U	A	U	A	U	A	U	A
1. Add names.		V	V	V	V	V	V	V	V	V	V
2. Delete/change names.		V	O	V	O	V	O	V	O	V	V
3. Authority to post own quotes.		+	+	+	+	+	+	+	V	+	V
4. Authority to post others' quotes.		+	+	+	+	+	+	+	+	+	V
5. Authority to track own sales status.		+	V	+	V	+	V	+	V	+	V
6. Authority to track own RMA status.		+	V	+	V	+	V	+	V	+	V
7. Authority to track own sales history.		+	V	+	V	+	V	+	V	+	V
8. Authority to track own RMA history.		+	V	+	V	+	V	+	V	+	V

FIG.45A

9. Authority to track for others' sales status.	N	+	+	+	+	+	+	+	+	V	V
10. Authority to track for others' sales status.	N	+	+	+	+	+	+	+	+	V	V
11. Authority to track for others' RMA status.	N	+	+	+	+	+	+	+	+	V	V
12. Authority to track for others' sales history.	N	+	+	+	+	+	+	+	+	V	V
13. Authority to track for others' RMA history.	N	+	+	+	+	+	+	+	+	V	V
14. Maximum # of ship to per user.	N	+	+	+	+	+	+	+	+	V	V
15. Maximum # of PO/day/user.	N	+	+	+	+	+	+	+	+	V	V
16. Maximum $ of PO/day/user.	N	+	+	+	+	+	+	+	+	V	V
17. Maximum $ of PO/day/company.	N	+	+	+	+	+	+	+	+	V	V
18. Overall credit limit.	N	O	O	O	O	O	O	+	+	V	V

FIG.45B

19. Default maximum PO $ amount. (Send alert & stop MWS posting)	N	+	+	+	+	+	+	+	+	V	V
20. Authority to use credit card purchase	N	+	+	+	+	+	+	+	+	v	v

N = Blocked view, only management has view.
+ = Add, but cannot activate web acitivity.
v = Add, and activate web activity.
O = Block out, not applicable.

FIG.45C

Typical Lineage (Authority) Tree

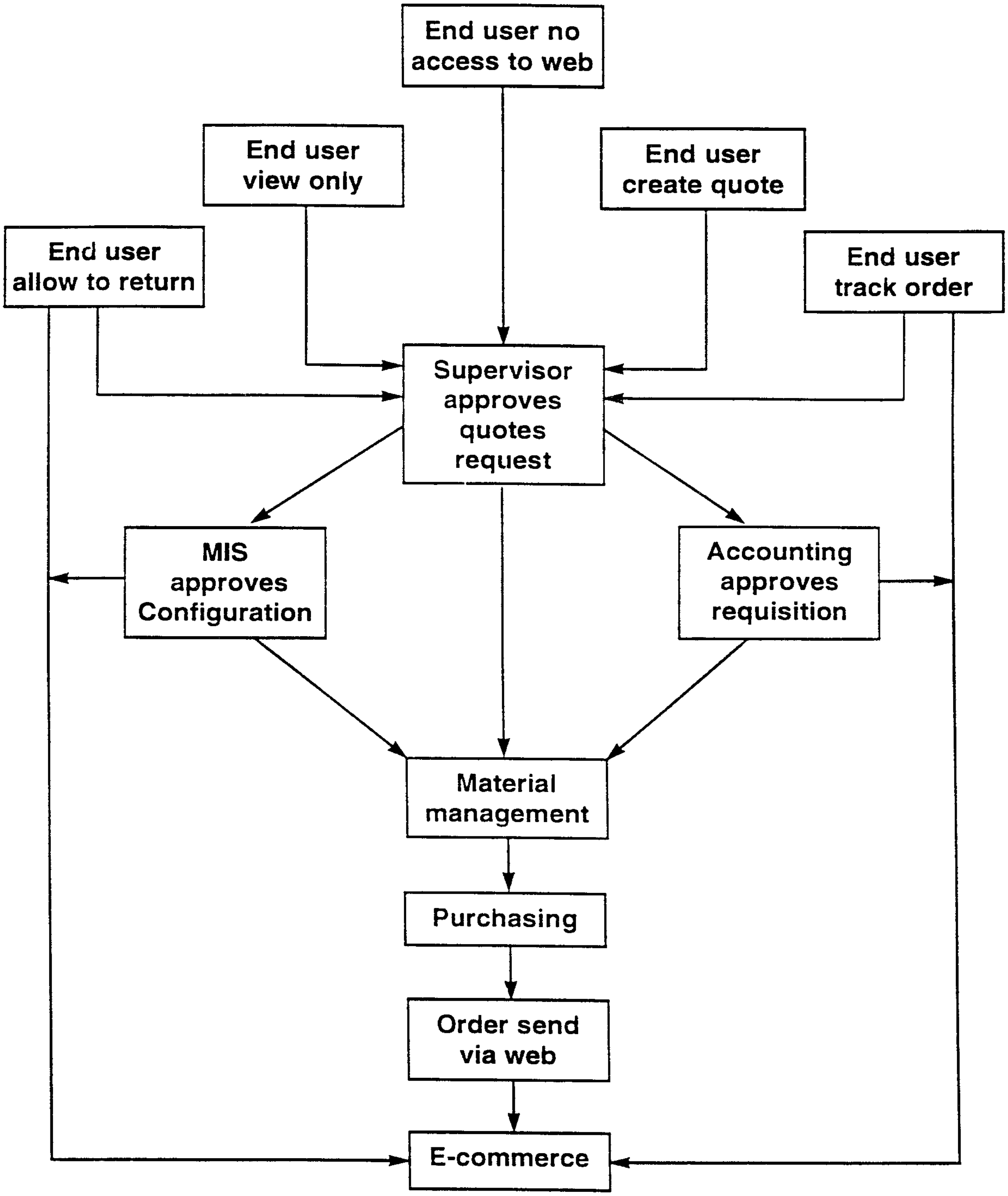
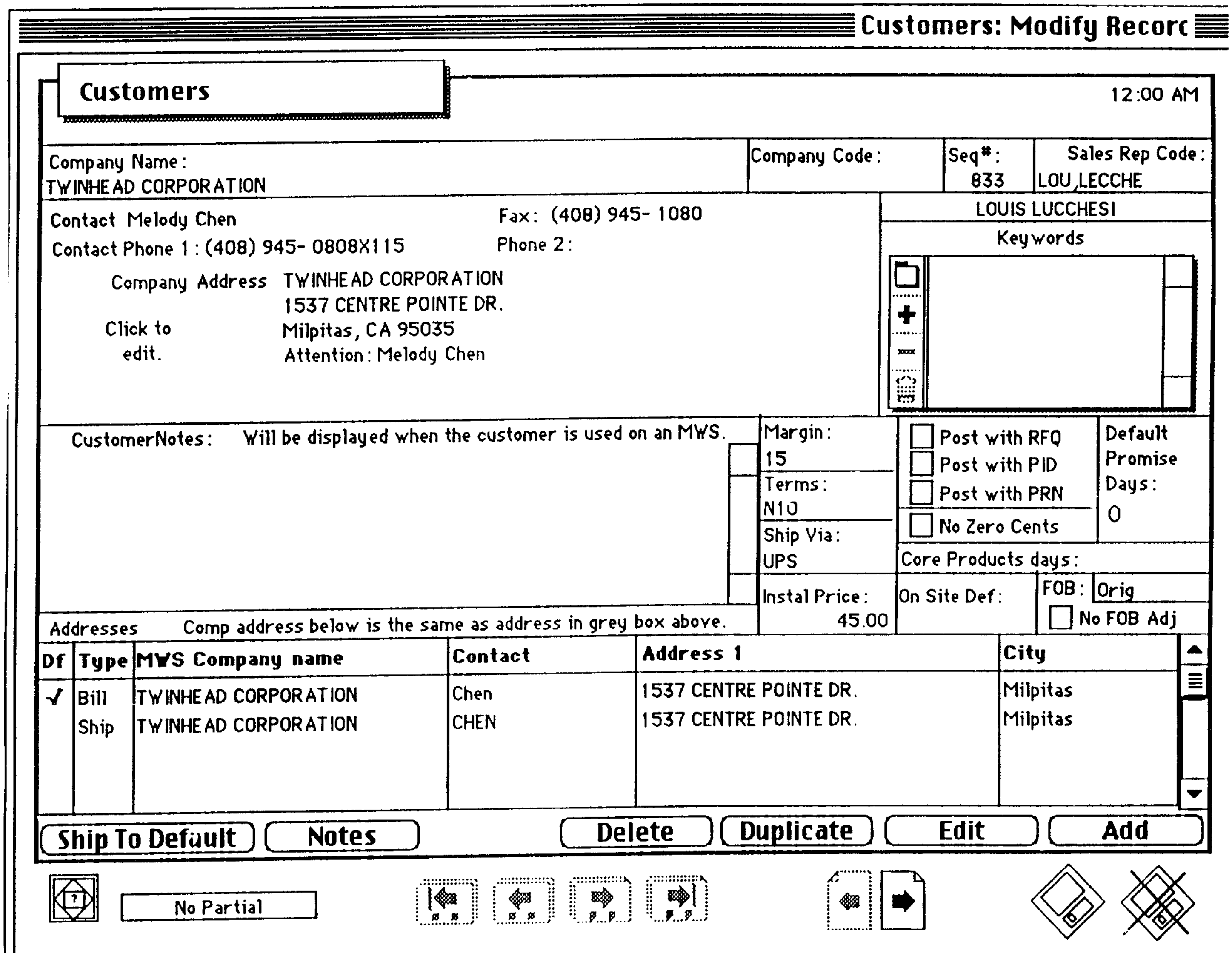


FIG.46



12:00 AM

Company Name: TWINHEAD CORPORATION

Company Code:

Seq#: 833

Sales Rep Code: LOU LECCHE

LOUIS LUCCHESI

Keywords

Contact Melody Chen

Fax: (408) 945- 1080

Contact Phone 1: (408) 945- 0808X115

Phone 2:

Company Address
TWINHEAD CORPORATION
1537 CENTRE POINTE DR.
Milpitas, CA 95035
Attention: Melody Chen

Click to edit.

CustomerNotes: Will be displayed when the customer is used on an MWS.

Margin: 15

Terms: N10

Ship Via: UPS

Instal Price: 45.00

☐ Post with RFQ
☐ Post with PID
☐ Post with PRN
☐ No Zero Cents

Default Promise Days: 0

Core Products days:

On Site Def:

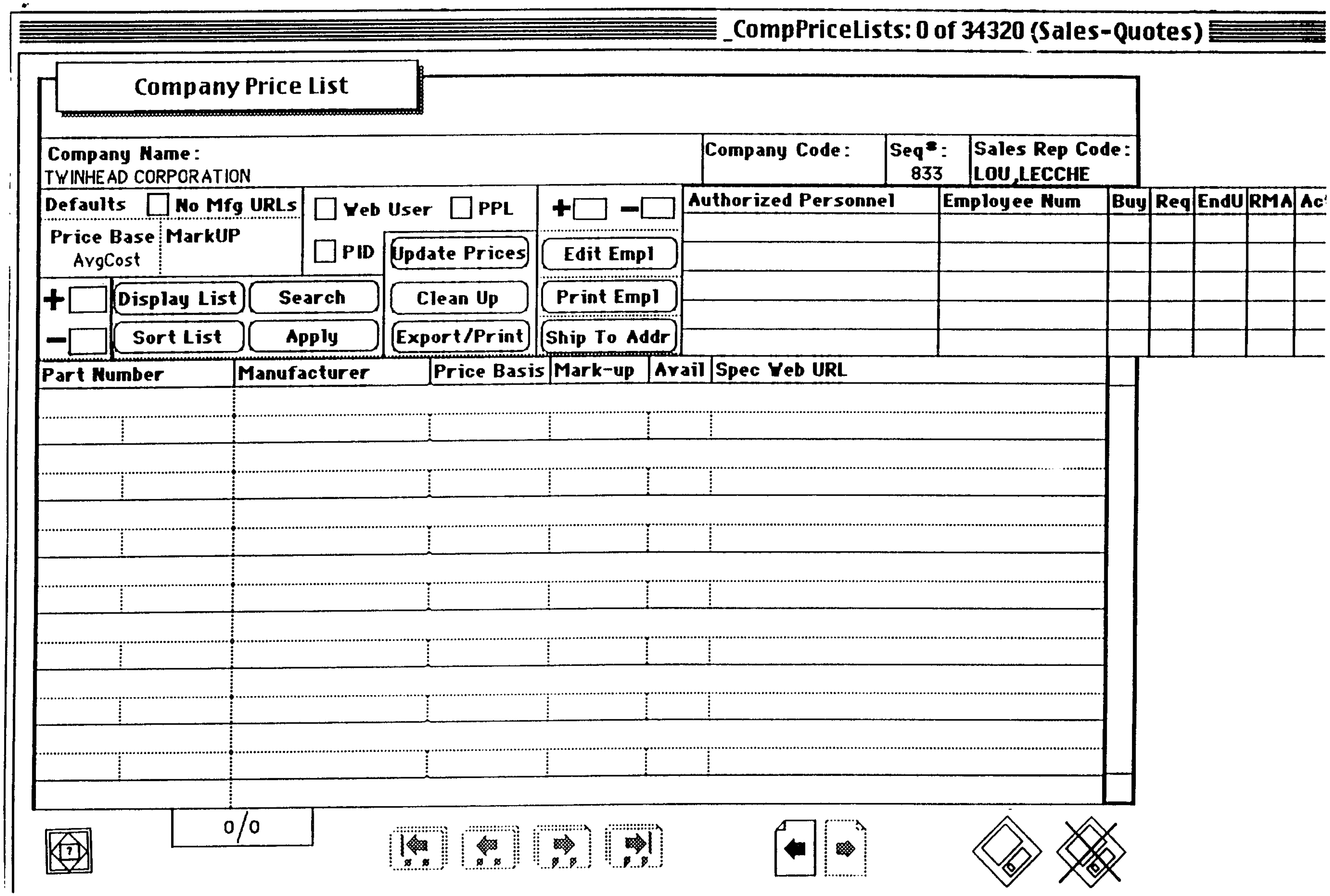
FOB: Orig

☐ No FOB Adj

Addresses Comp address below is the same as address in grey box above.

Df	Type	MWS Company name	Contact	Address 1	City
✓	Bill	TWINHEAD CORPORATION	Chen	1537 CENTRE POINTE DR.	Milpitas
	Ship	TWINHEAD CORPORATION	CHEN	1537 CENTRE POINTE DR.	Milpitas

FIG. 47



_CompPriceLists: 0 of 34320 (Sales-Quotes)

Company Price List

Company Name: TWINHEAD CORPORATION

Company Code:

Seq#: 833

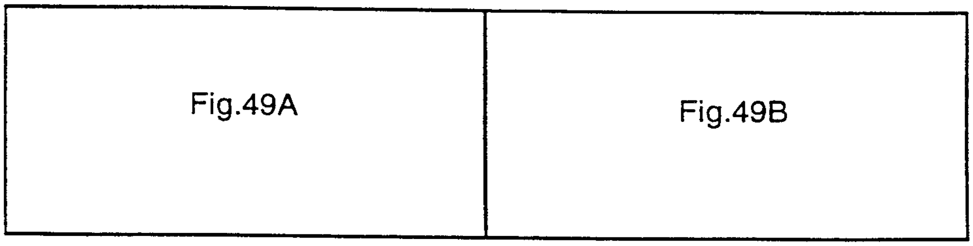
Sales Rep Code: LOU,LECCHE

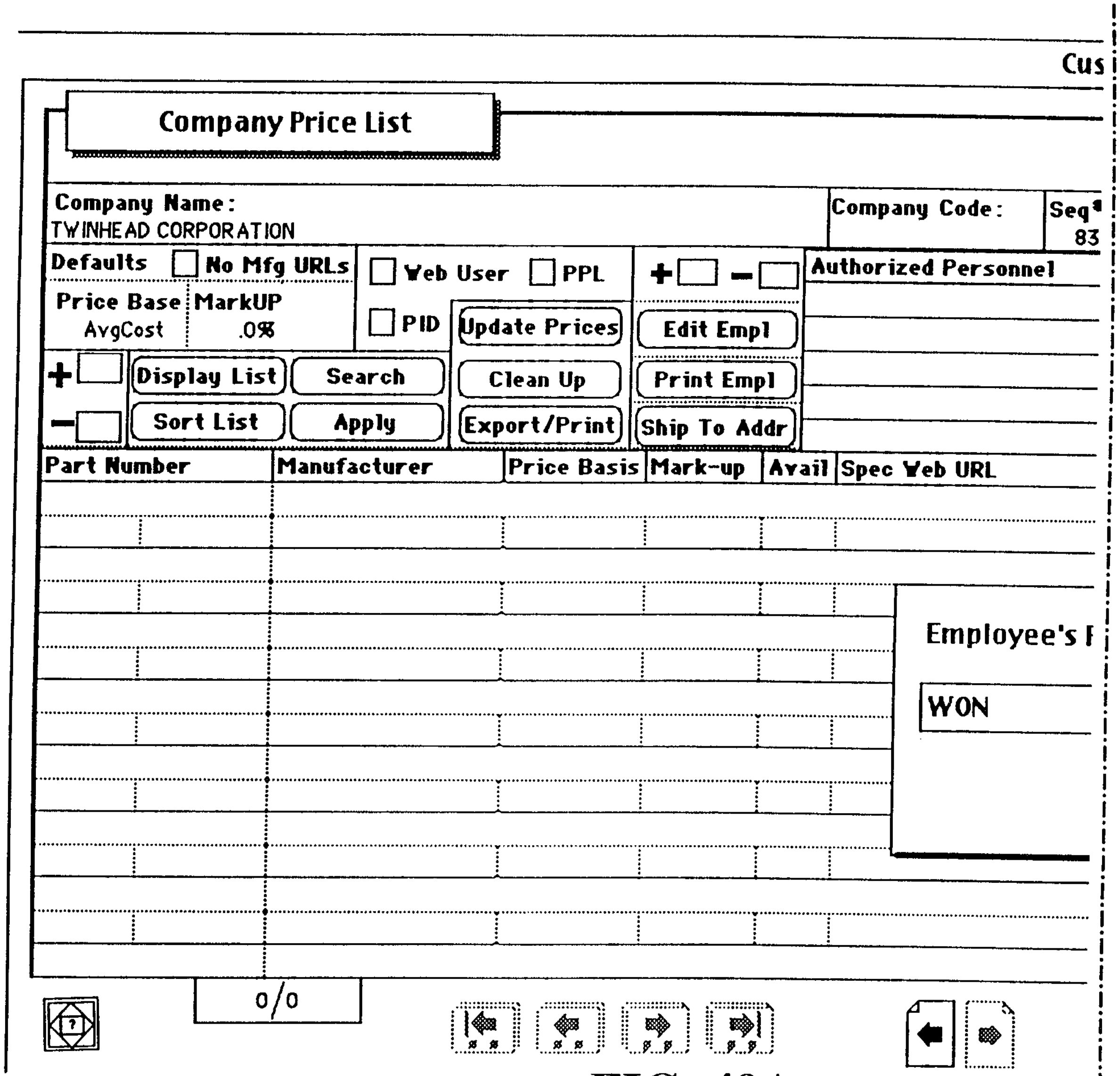
Price Base: AvgCost

MarkUP

FIG. 48

Fig. 49





Company Name: TWINHEAD CORPORATION

Company Code:

Seq 83

Defaults ☐ No Mfg URLs

Price Base AvgCost

MarkUP .0%

☐ Web User ☐ PPL ☐ PID

Employee's WON

FIG. 49A

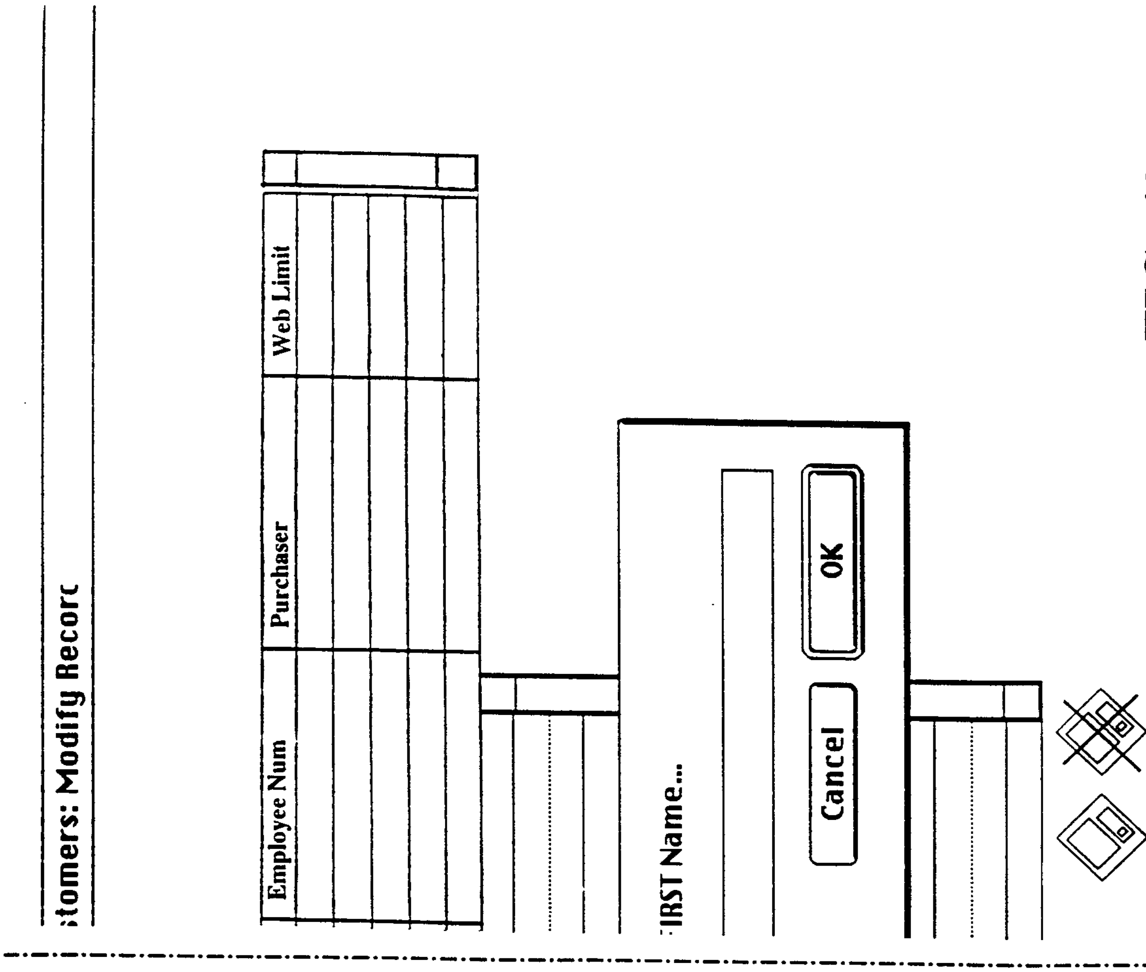
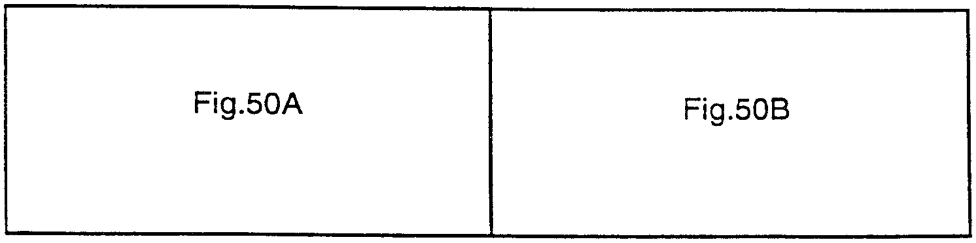
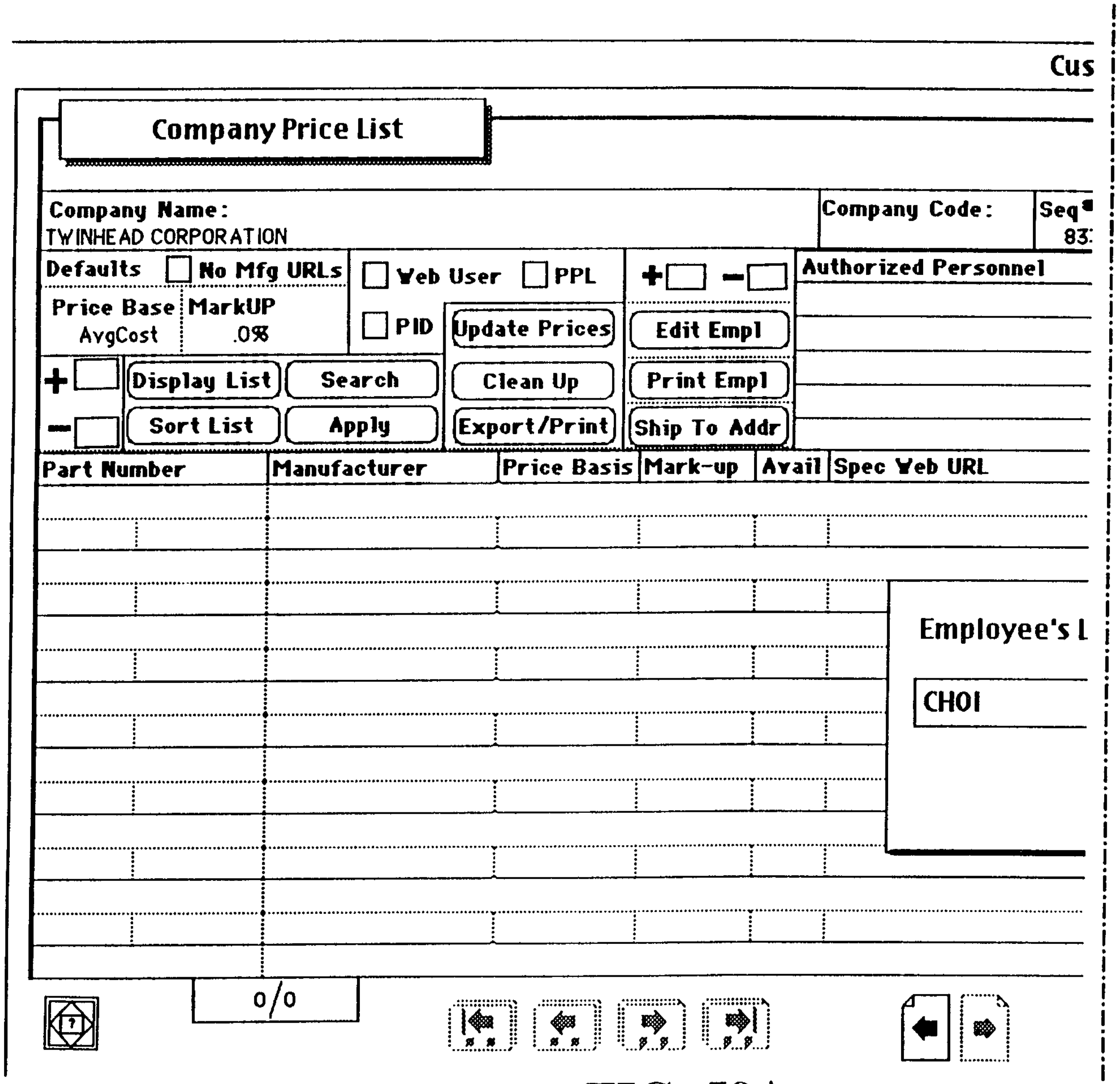

stomers: Modify Recorc
Employee Num
Purchaser
Web Limit
IRST Name...
OK
Cancel

FIG. 49B

Fig. 50





Company Name: TWINHEAD CORPORATION

Company Code:

Seq# 83

Defaults

Price Base: AvgCost

MarkUP: .0%

CHOI

0/0

FIG. 50A

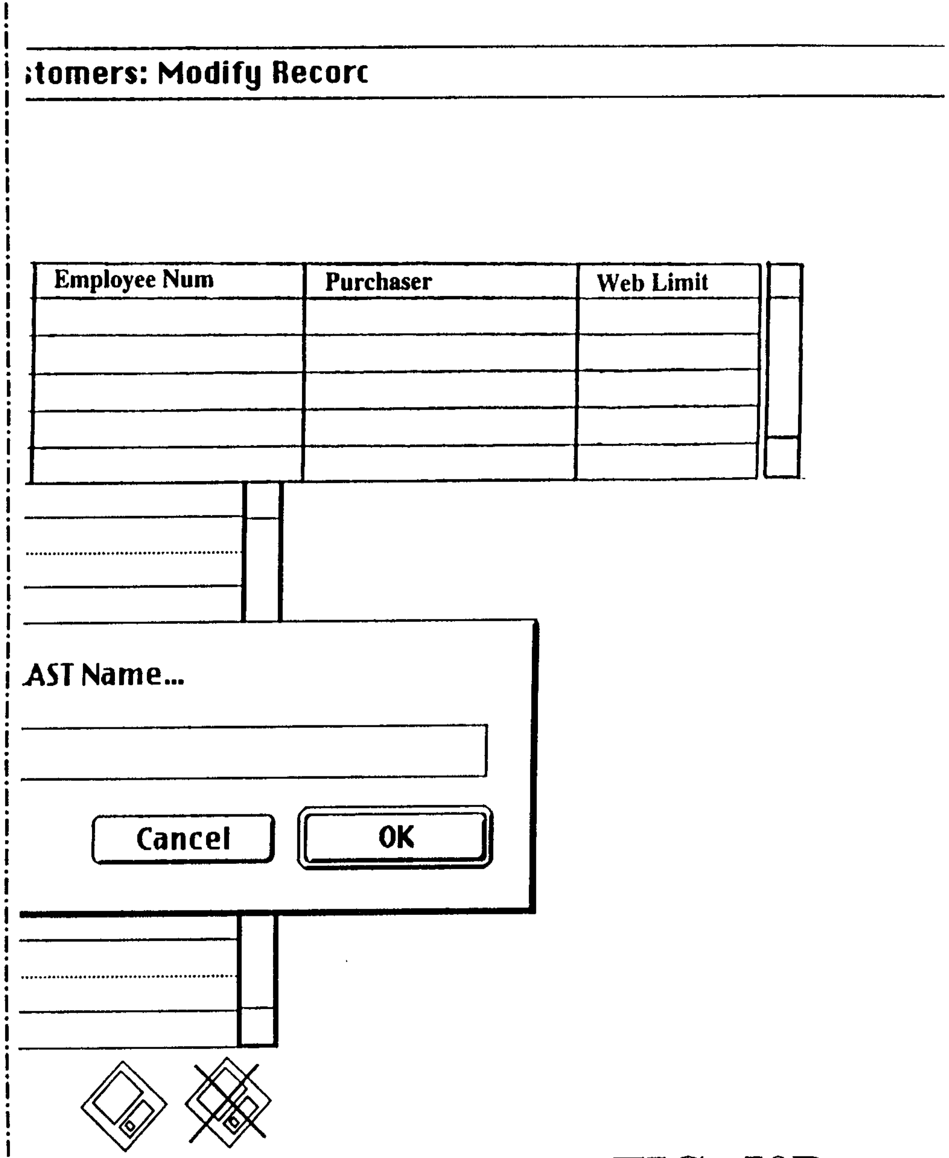
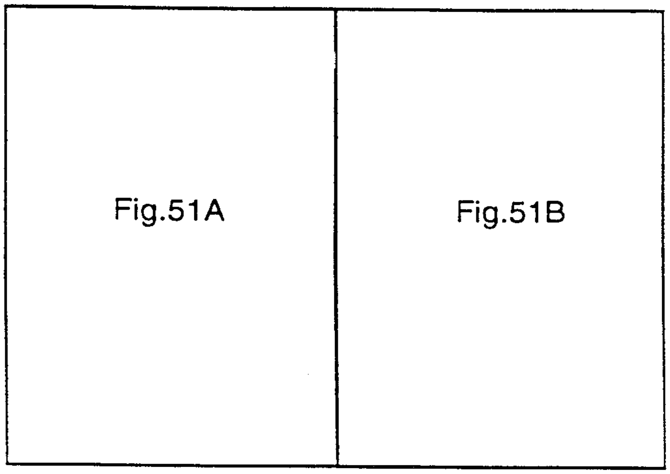
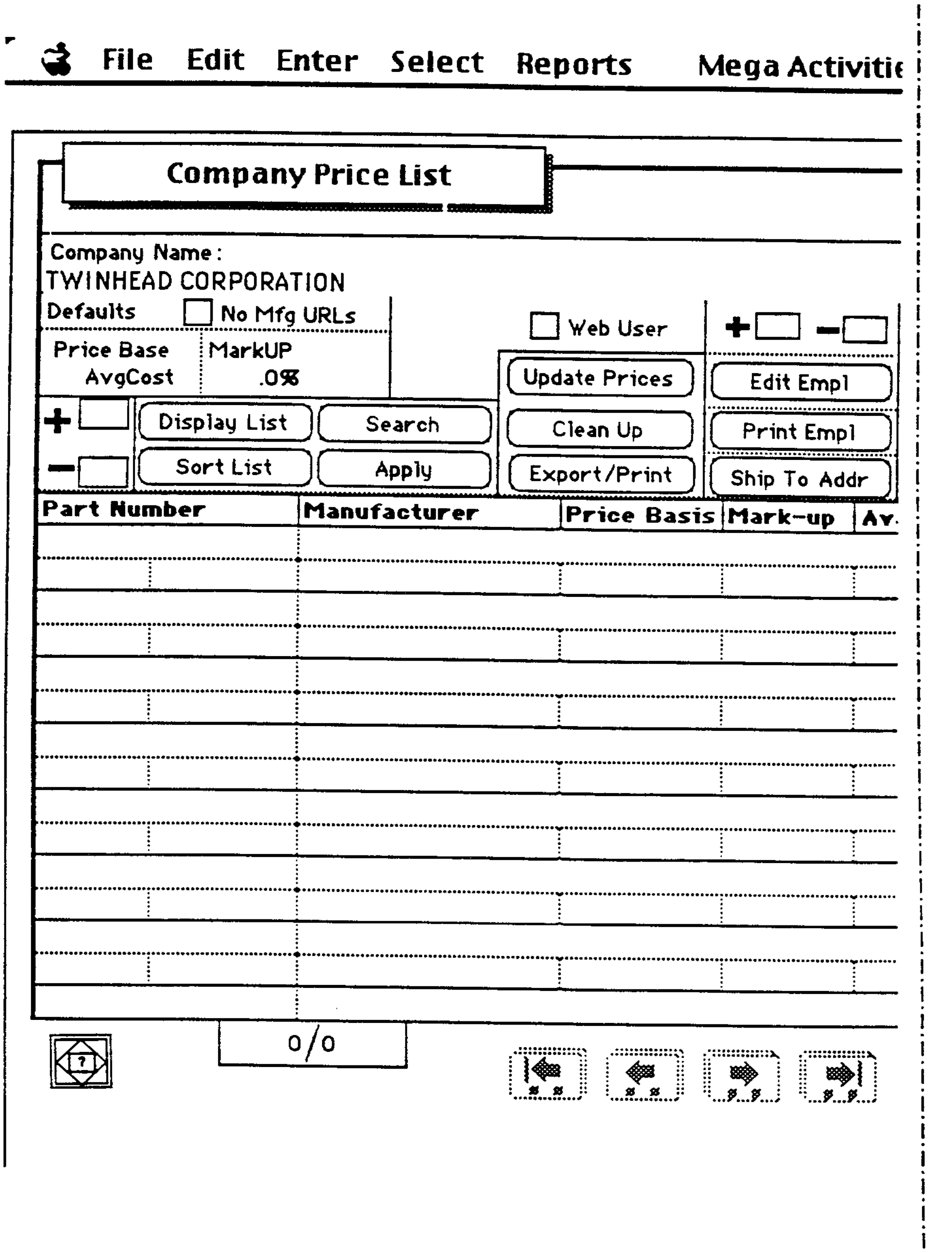

tomers: Modify Recorc
Employee Num
Purchaser
Web Limit
AST Name...
Cancel
OK

FIG. 50B

Fig.51

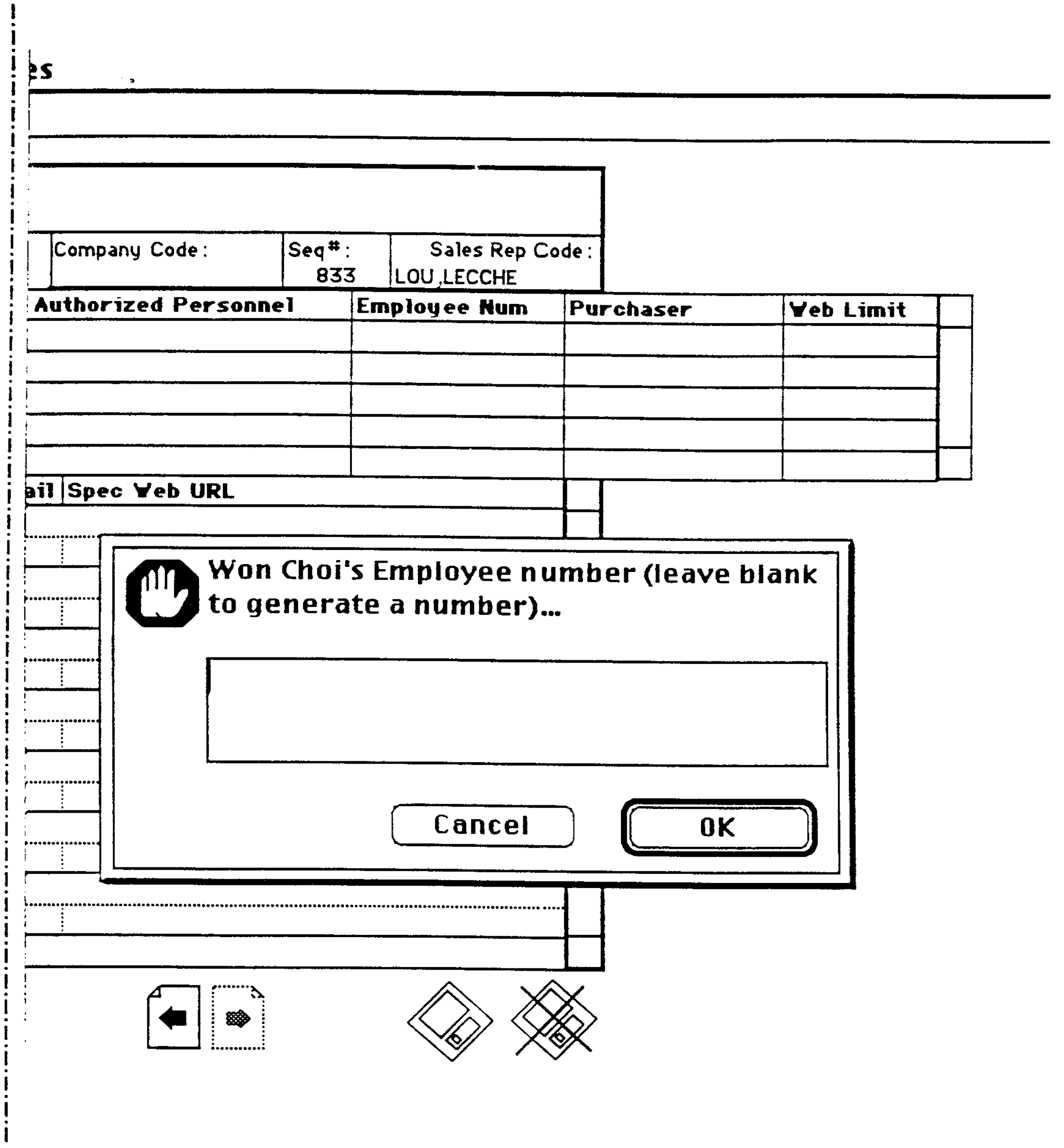




Company Name:
TWINHEAD CORPORATION

Price Base: AvgCost
MarkUP: .0%

FIG. 51A



Company Code:

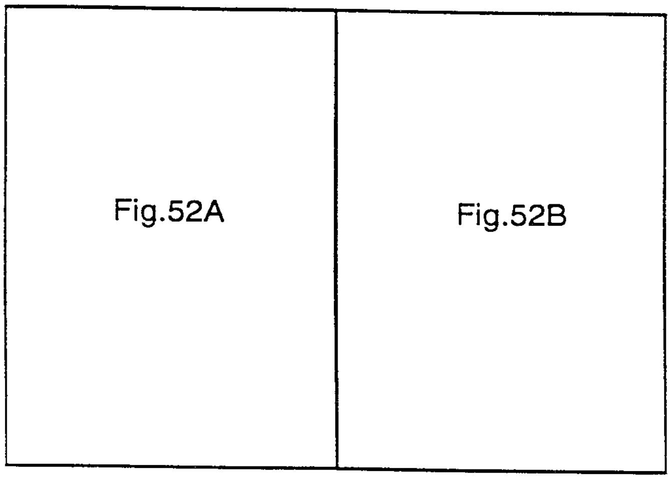
Seq#: 833

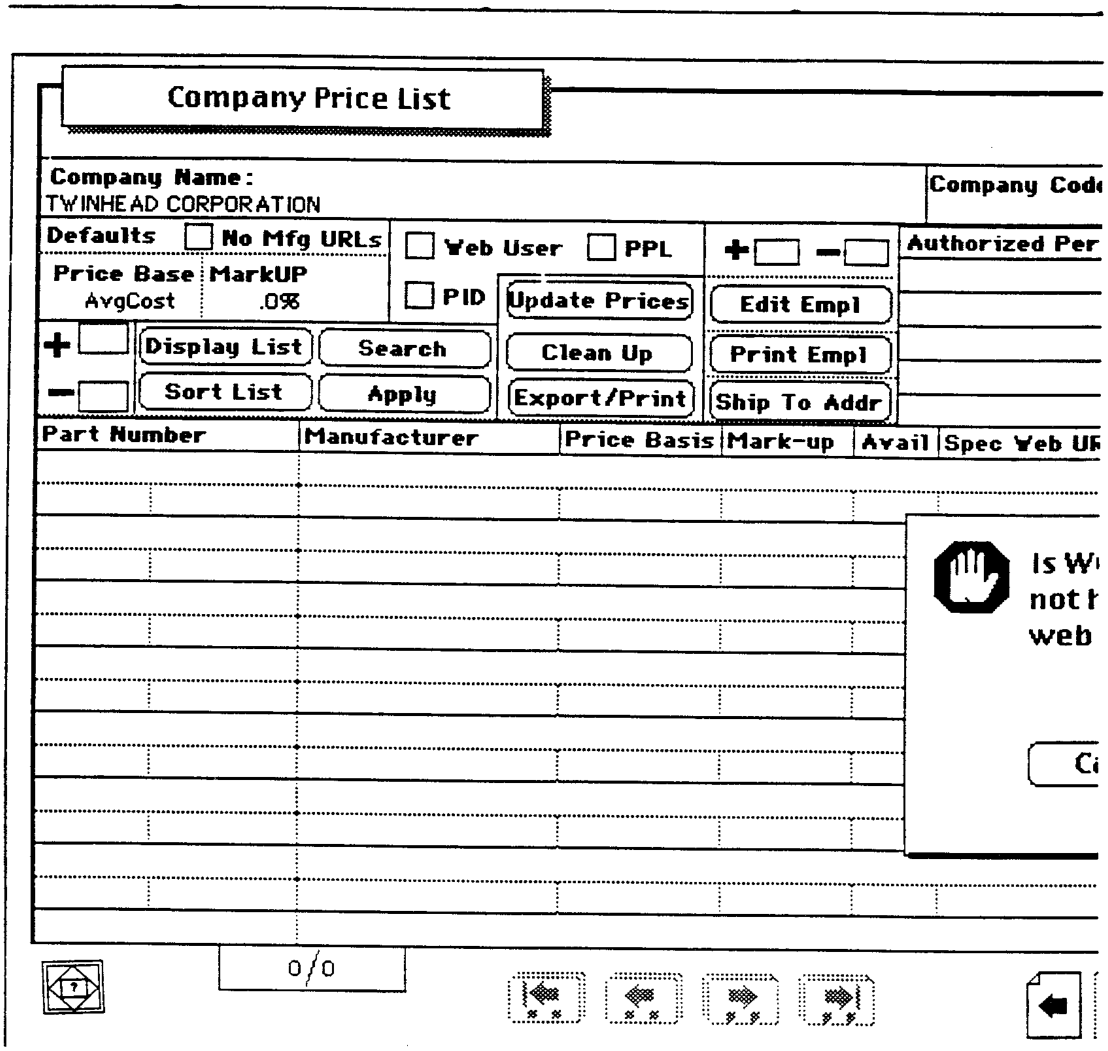
Sales Rep Code: LOU LECCHE

Won Choi's Employee number (leave blank to generate a number)...

FIG. 51B

Fig. 52





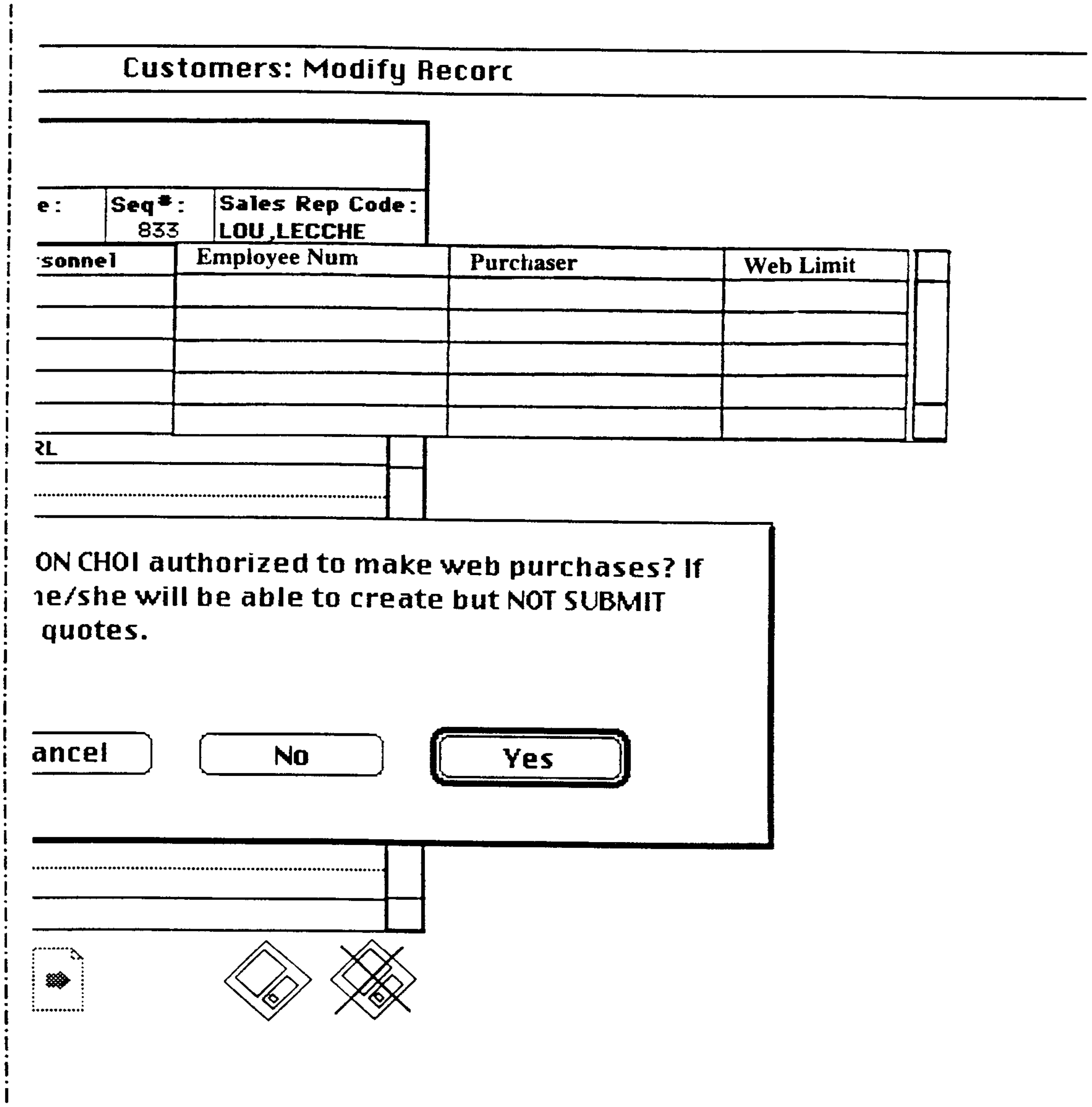
Company Name:
TWINHEAD CORPORATION

Price Base: AvgCost
MarkUP: .0%

0/0

Is W
not t
web

FIG. 52A



Customers: Modify Recorc

e:	Seq#:	Sales Rep Code:
	833	LOU,LECCHE

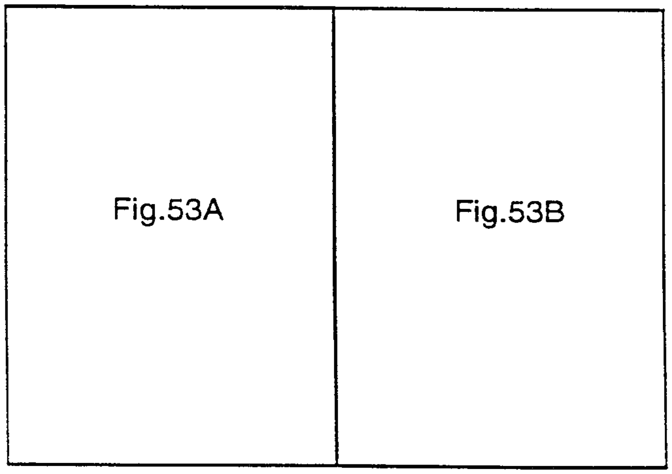
sonnel	Employee Num	Purchaser	Web Limit

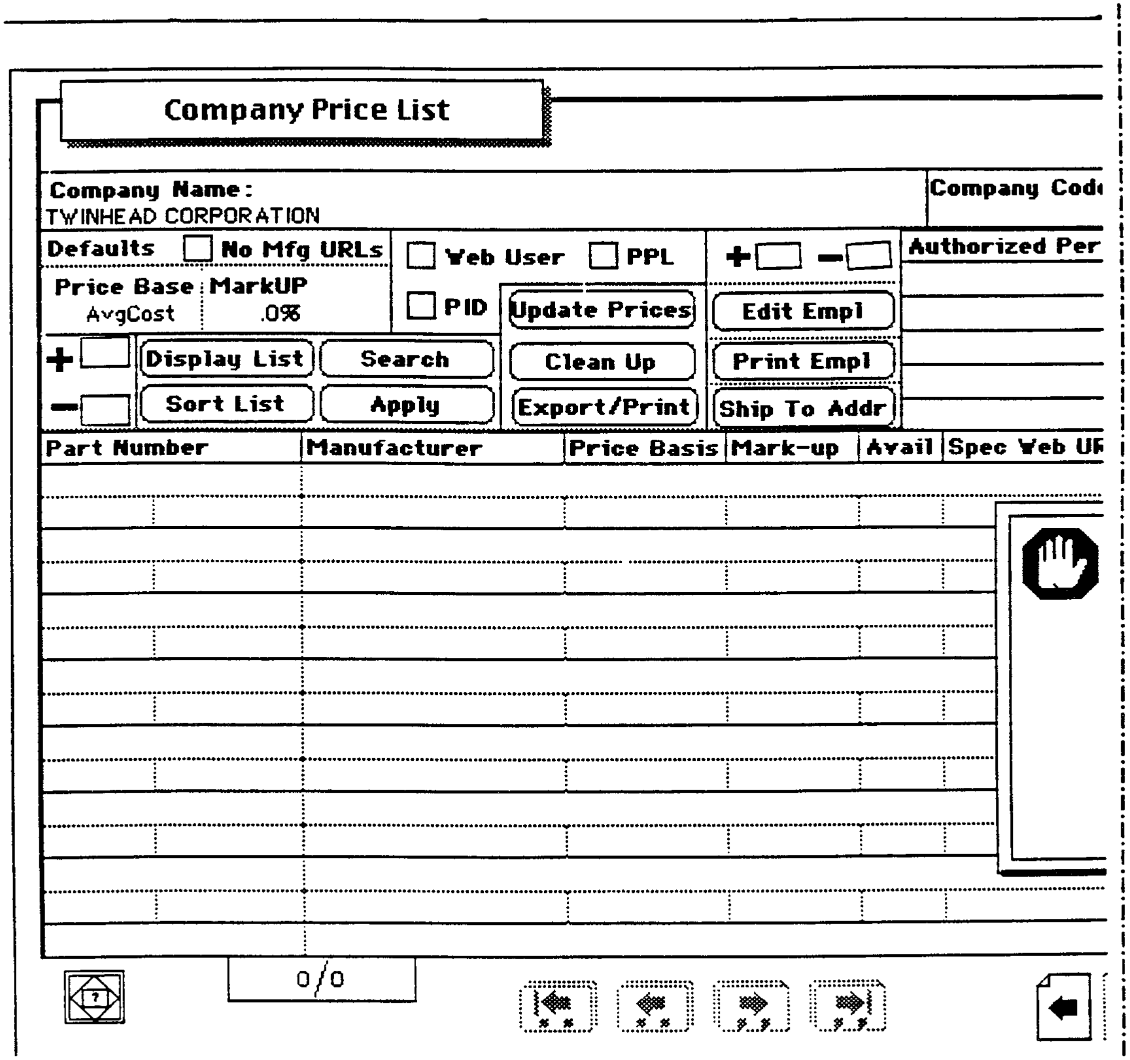
RL

ON CHOI authorized to make web purchases? If
e/she will be able to create but NOT SUBMIT
quotes.

FIG. 52B

Fig. 53





Company Price List

Company Name:
TWINHEAD CORPORATION

Company Code

Defaults ☐ No Mfg URLs ☐ Web User ☐ PPL + ☐ − ☐

Authorized Per

Price Base: AvgCost

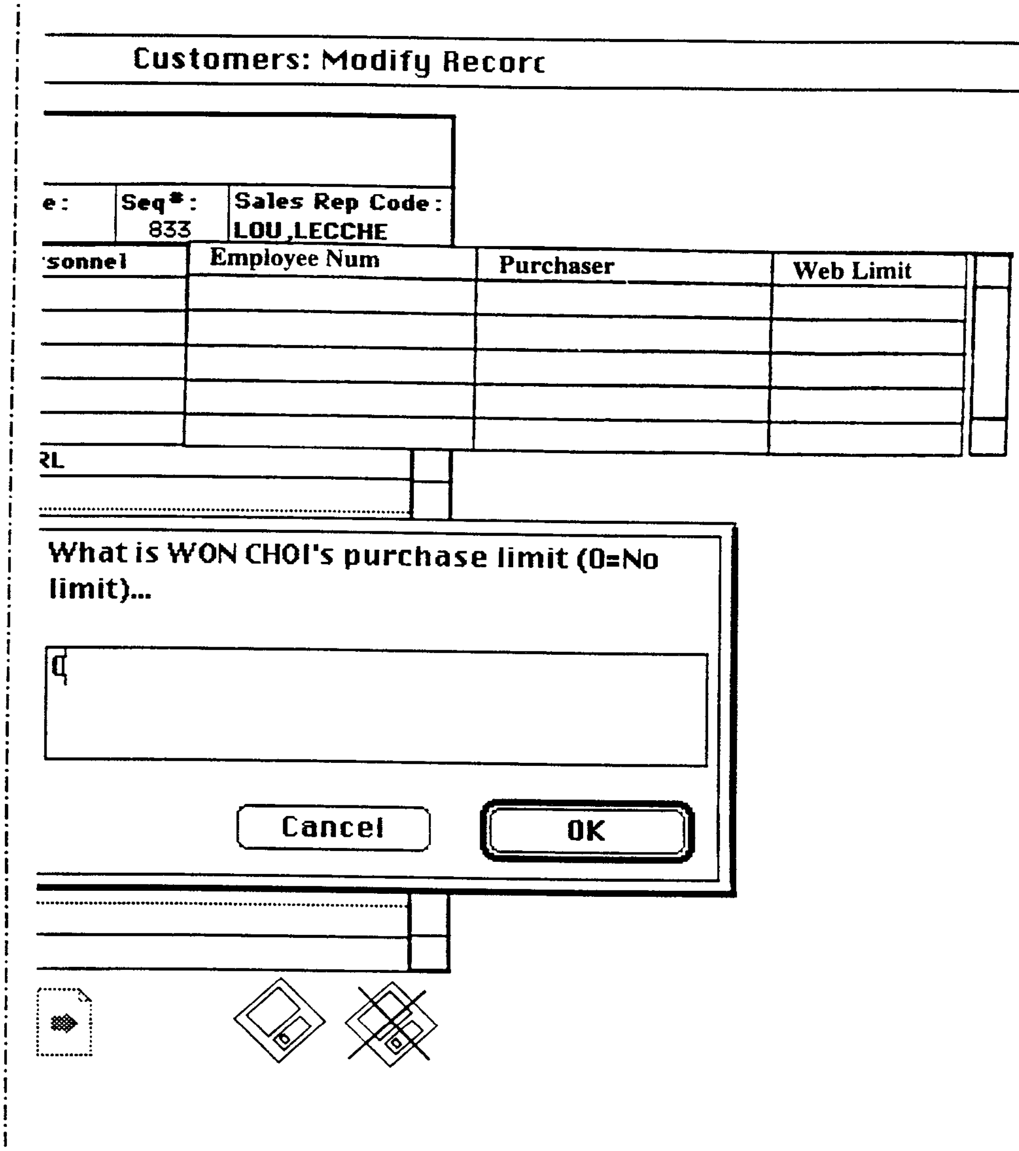
MarkUP: .0%

☐ PID

Part Number	Manufacturer	Price Basis	Mark-up	Avail	Spec Web UR

0/0

FIG. 53A



Customers: Modify Recorc

e :

Seq*: 833

Sales Rep Code: LOU,LECCHE

'sonnel	Employee Num	Purchaser	Web Limit

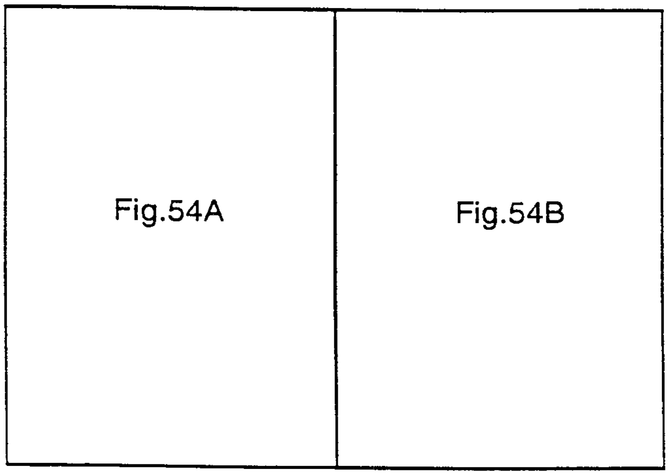
RL

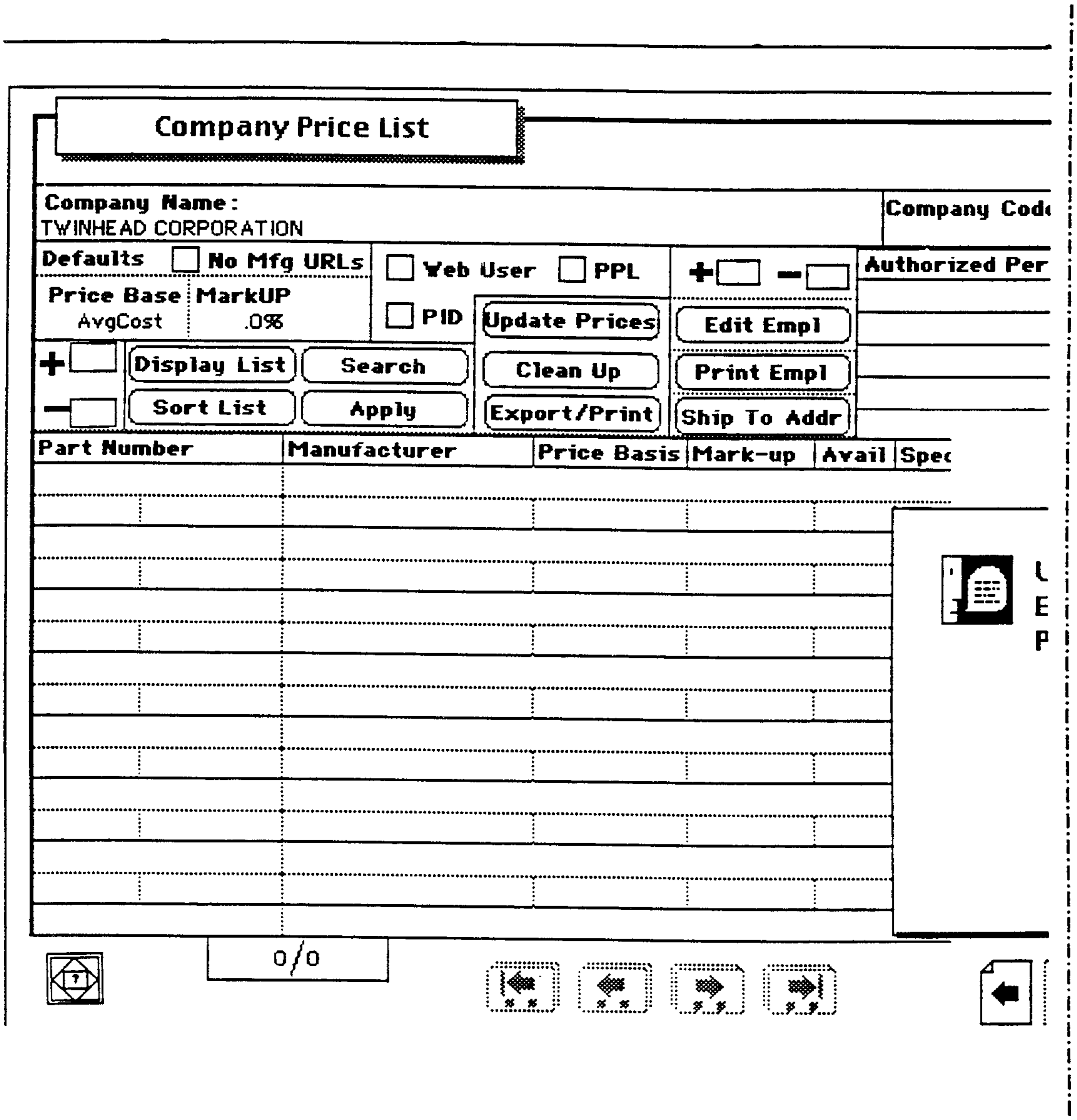
What is WON CHOI's purchase limit (0=No limit)...

0

FIG. 53B

Fig. 54





Company Price List

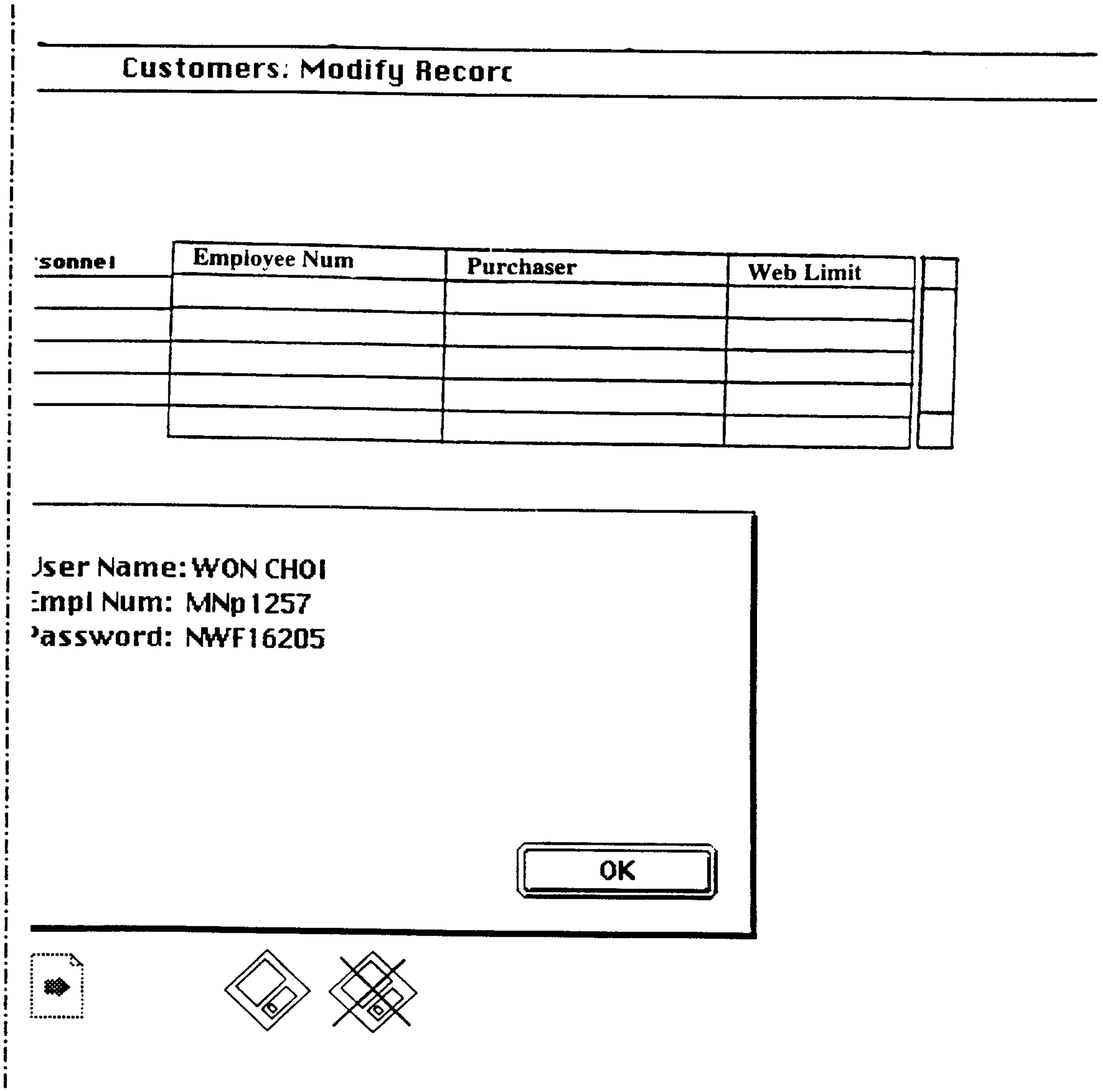
Company Name: TWINHEAD CORPORATION

Price Base: AvgCost

MarkUP: .0%

0/0

FIG. 54A



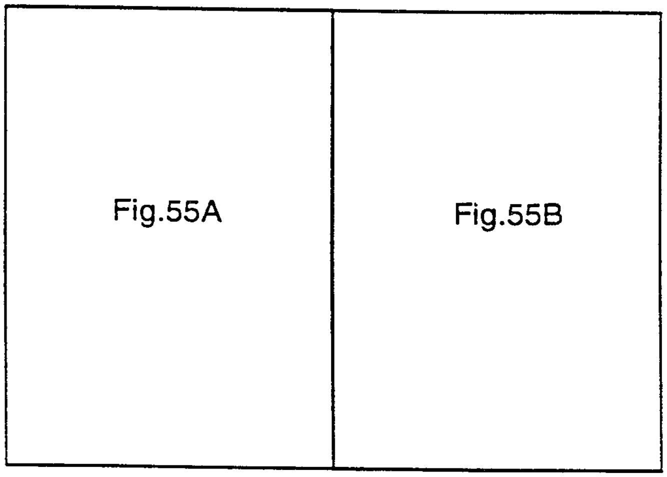
Customers: Modify Recorc

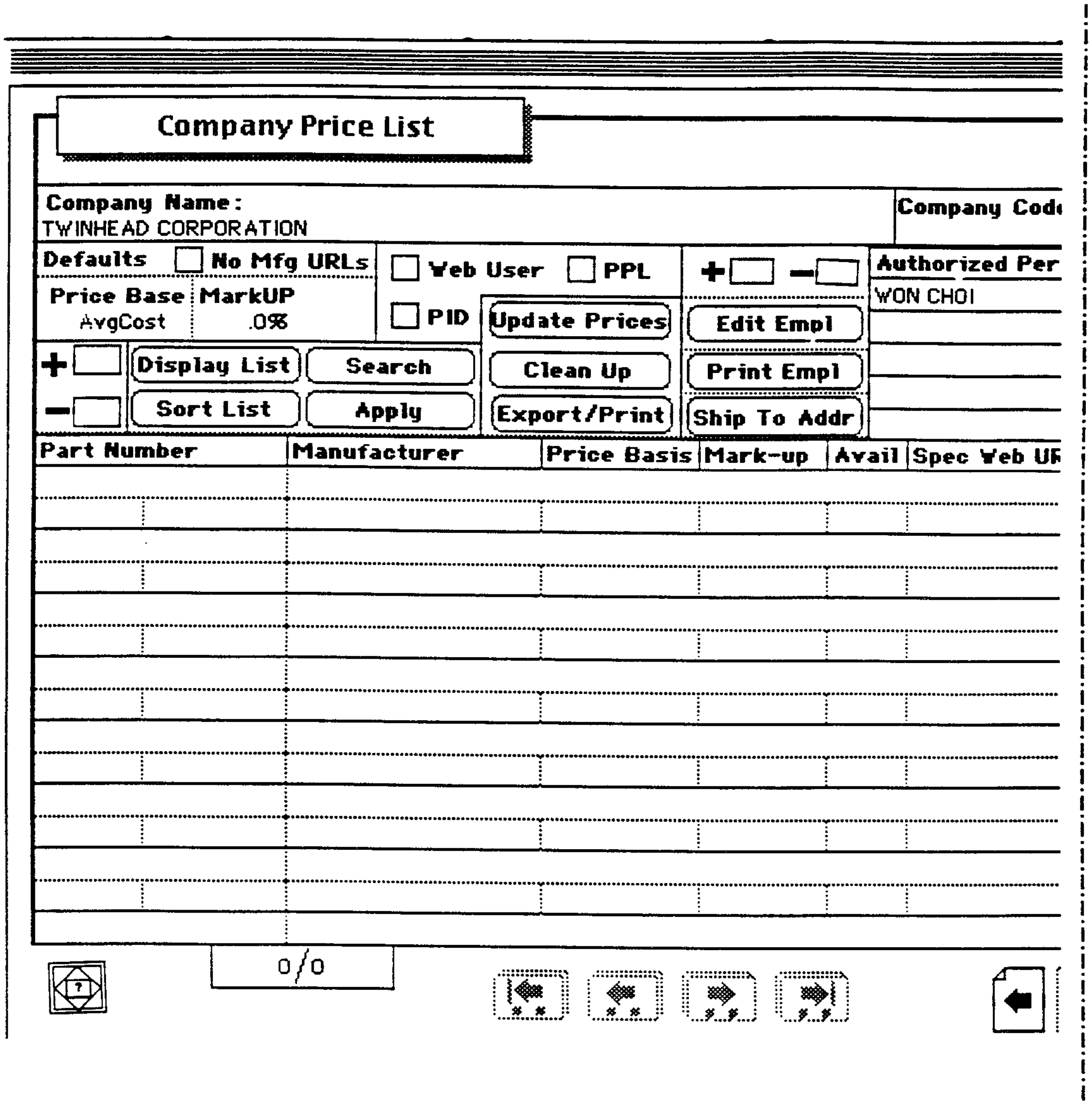
sonnel	Employee Num	Purchaser	Web Limit

Jser Name: WON CHOI
mpl Num: MNp1257
assword: NWF16205

FIG. 54B

Fig. 55



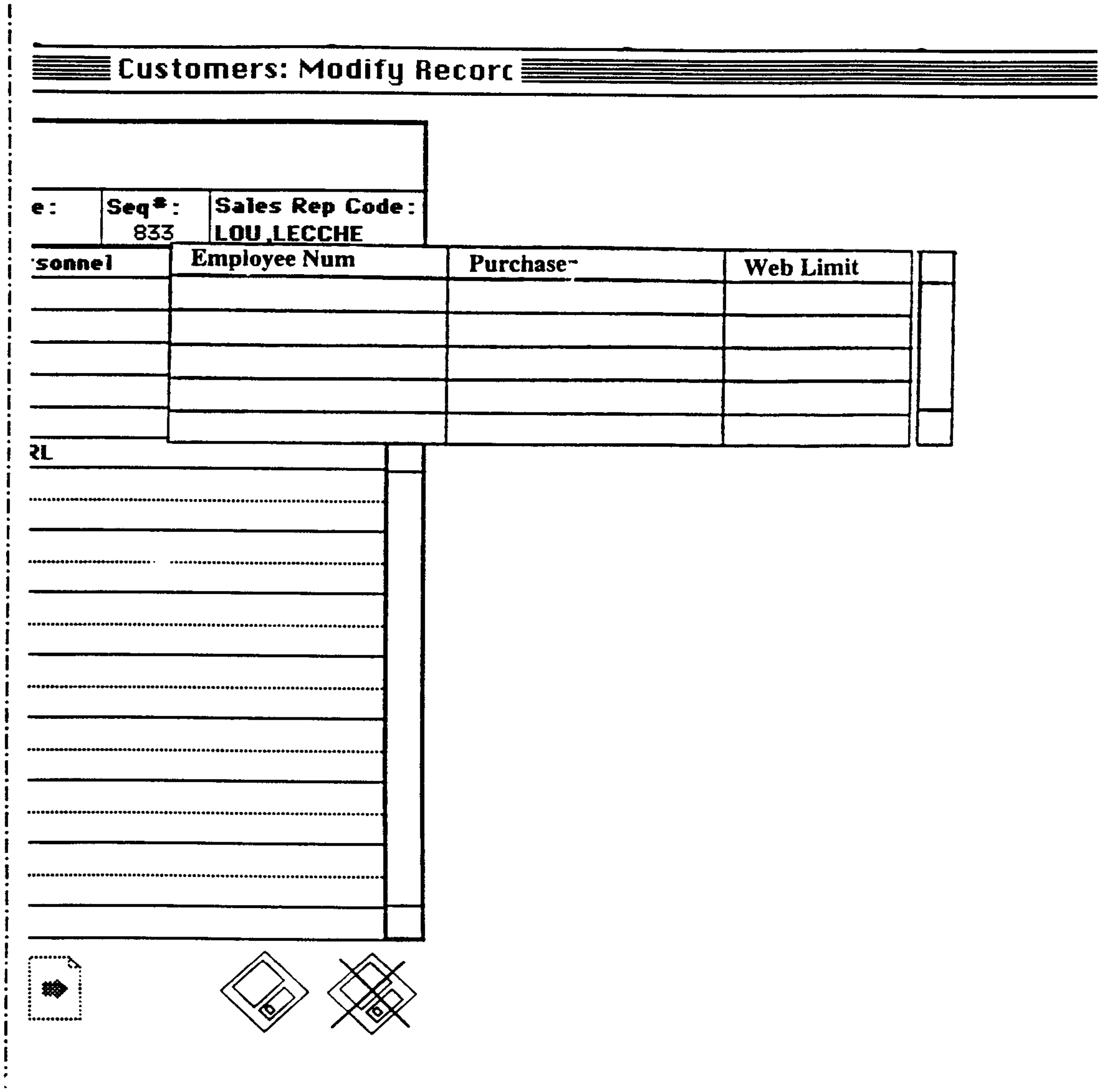


Company Name:
TWINHEAD CORPORATION

Price Base: AvgCost
MarkUP: .0%

Authorized Per: WON CHOI

FIG. 55A



Seq*: 833

Sales Rep Code: LOU.LECCHE

FIG. 55B

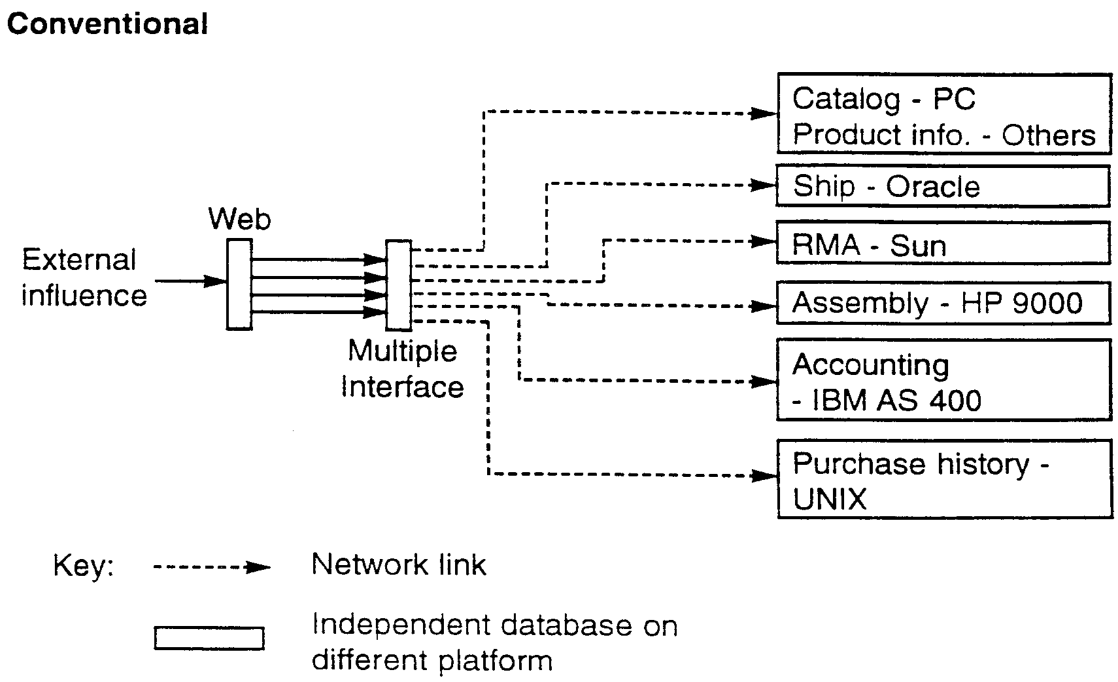

Conventional
Web
External influence
Multiple Interface
Catalog - PC
Product info. - Others
Ship - Oracle
RMA - Sun
Assembly - HP 9000
Accounting
- IBM AS 400
Purchase history -
UNIX
Key:
Network link
Independent database on different platform

FIG.56

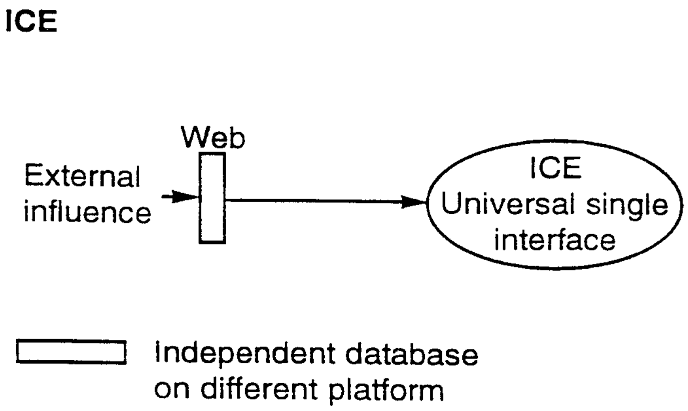

ICE
Web
External influence
ICE Universal single interface
Independent database on different platform

FIG.57

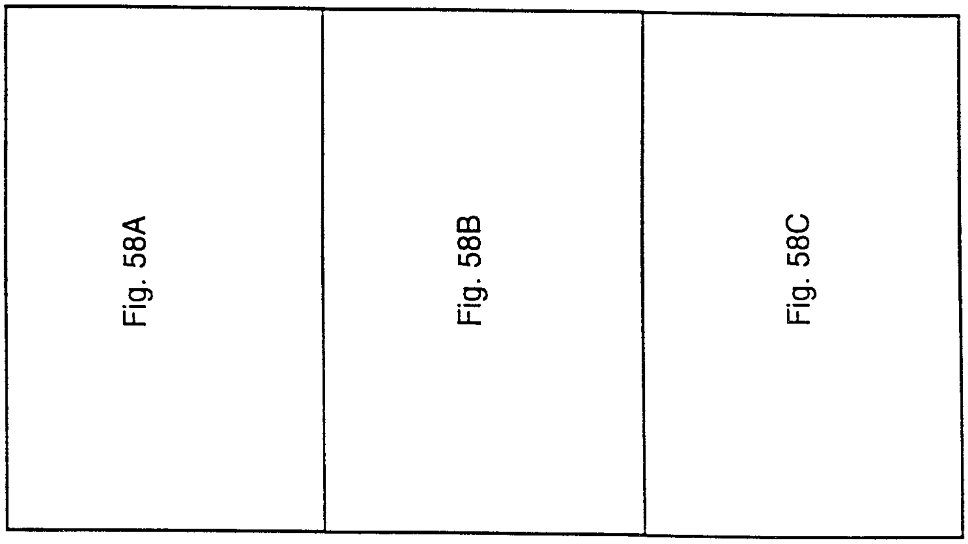


Fig. 58

Entity Diagram Index

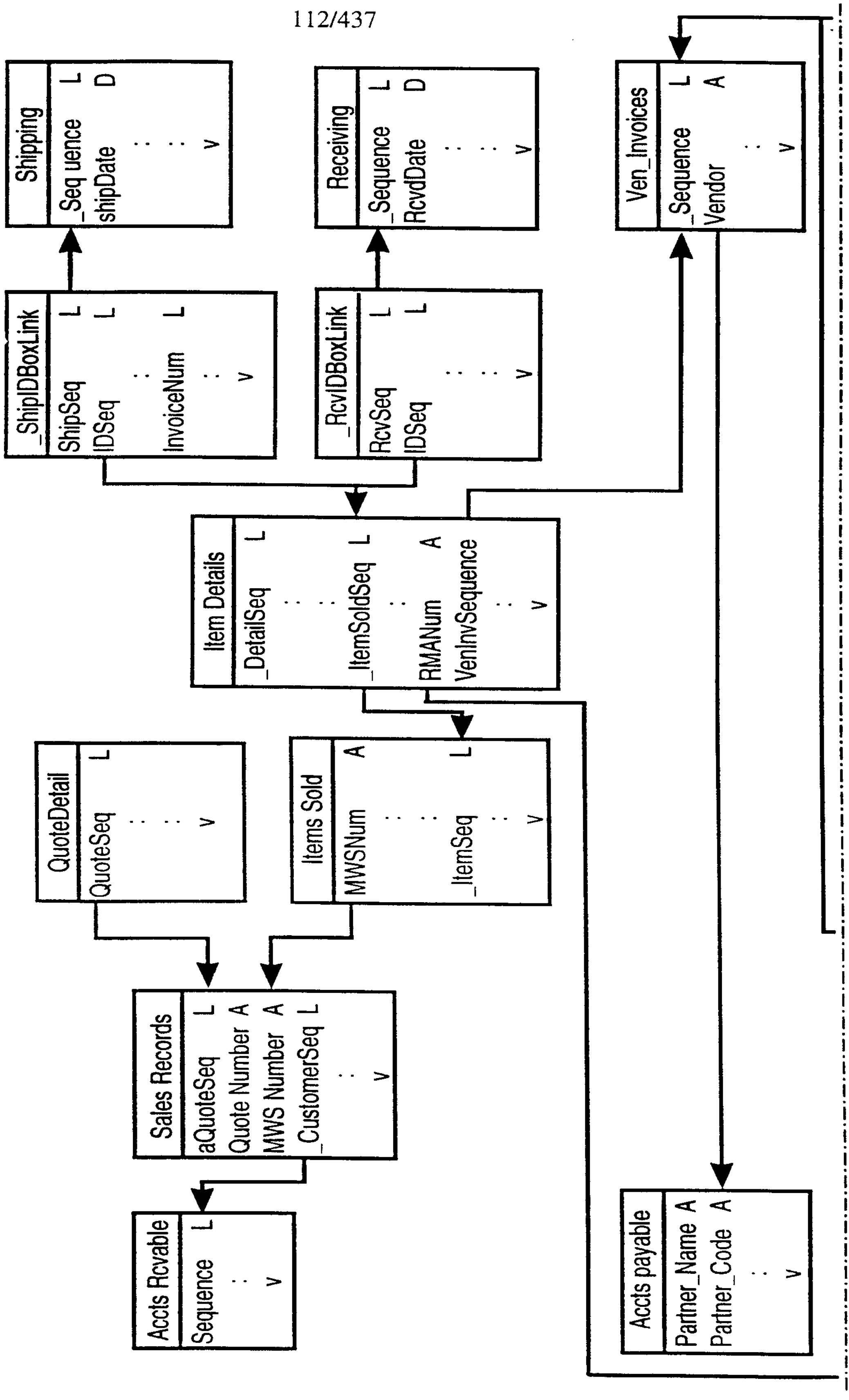


FIG.58A

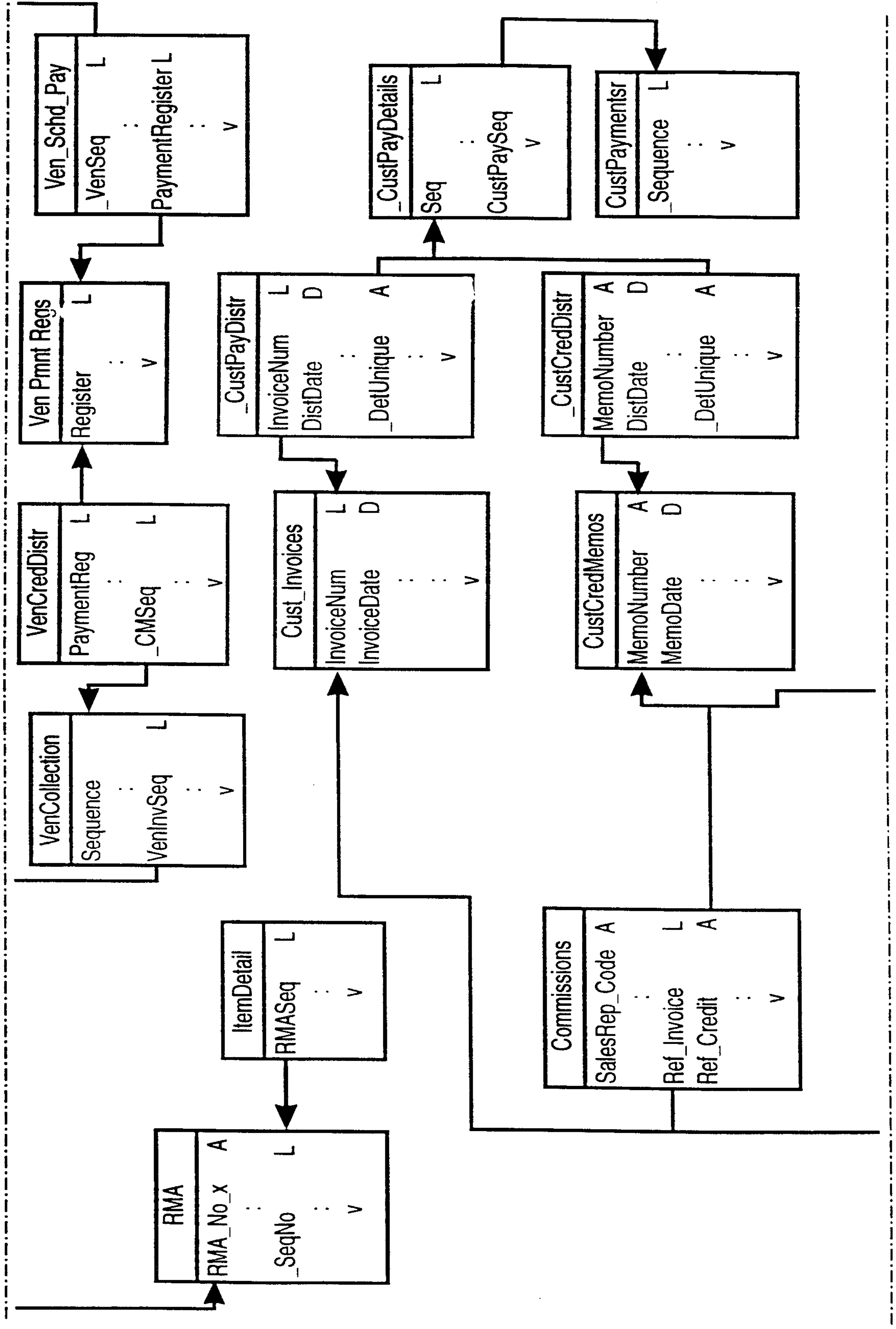

Ven_Schd_Pay
_VenSeq
PaymentRegister
L
L
v
Ven Pmnt Regs
Register
L
v
VenCredDistr
PaymentReg
_CMSeq
L
L
v
VenCollection
Sequence
VenInvSeq
L
v
ItemDetail
RMASeq
L
v
RMA
RMA_No_x
_SeqNo
A
L
v
_CustPayDetails
Seq
CustPaySeq
L
v
CustPaymentsr
_Sequence
L
v
_CustPayDistr
InvoiceNum
DistDate
_DetUnique
L
D
A
v
_CustCredDistr
MemoNumber
DistDate
_DetUnique
A
D
A
v
Cust_Invoices
InvoiceNum
InvoiceDate
L
D
v
CustCredMemos
MemoNumber
MemoDate
A
D
v
Commissions
SalesRep_Code
Ref_Invoice
Ref_Credit
A
L
A
v

FIG.58B

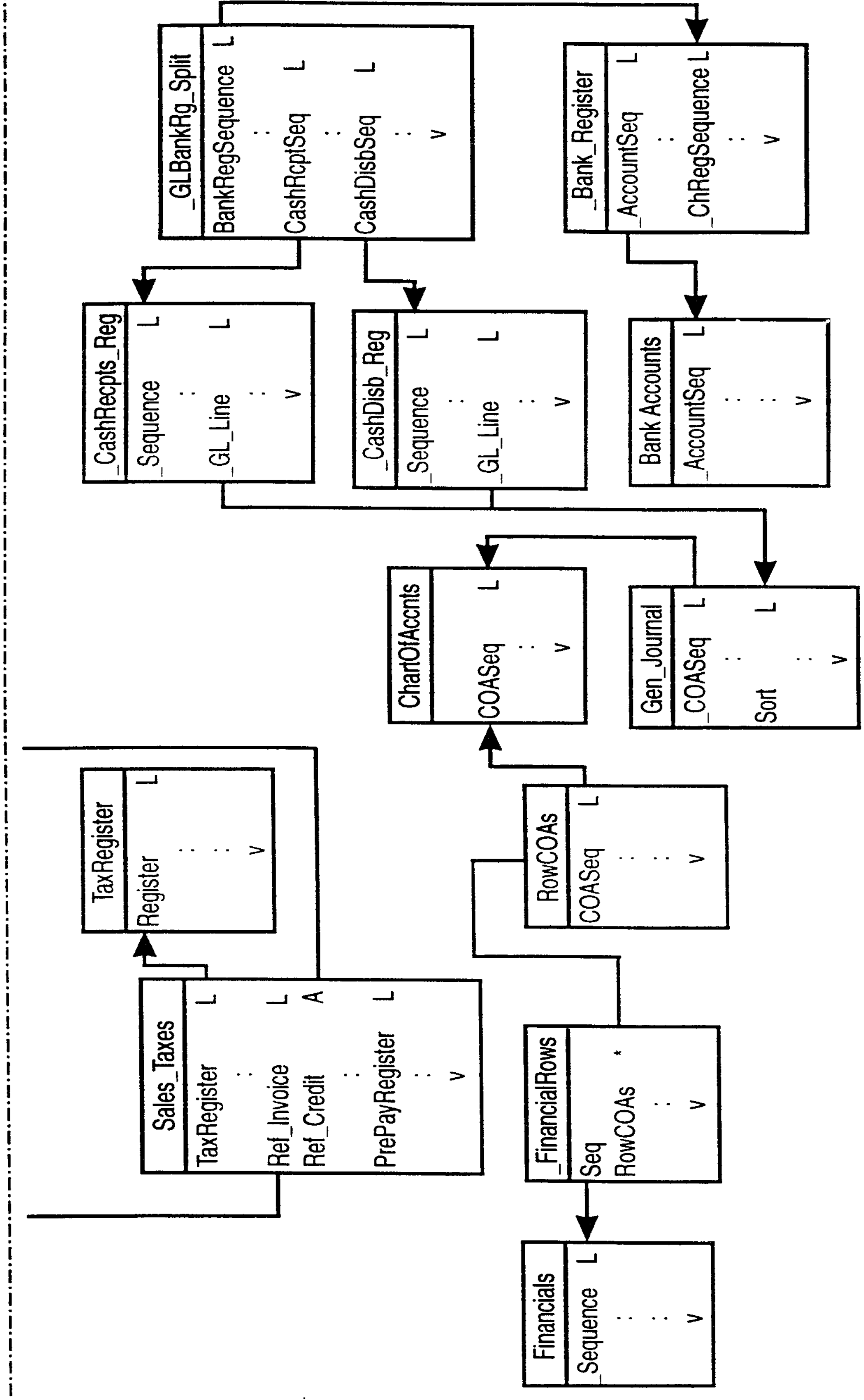

_GLBankRg_Split
BankRegSequence L
CashRcptSeq L
CashDisbSeq L
_Bank_Register
_AccountSeq L
_ChRegSequence L
_CashRecpts_Reg
_Sequence L
_GL_Line L
_CashDisb_Reg
_Sequence L
_GL_Line L
Bank Accounts
_AccountSeq L
ChartOfAccnts
COASeq L
Gen_Journal
_COASeq L
Sort L
TaxRegister
Register L
RowCOAs
COASeq L
Sales_Taxes
TaxRegister L
Ref_Invoice L
Ref_Credit A
PrePayRegister L
_FinancialRows
Seq
RowCOAs *
Financials
_Sequence L

FIG.58C

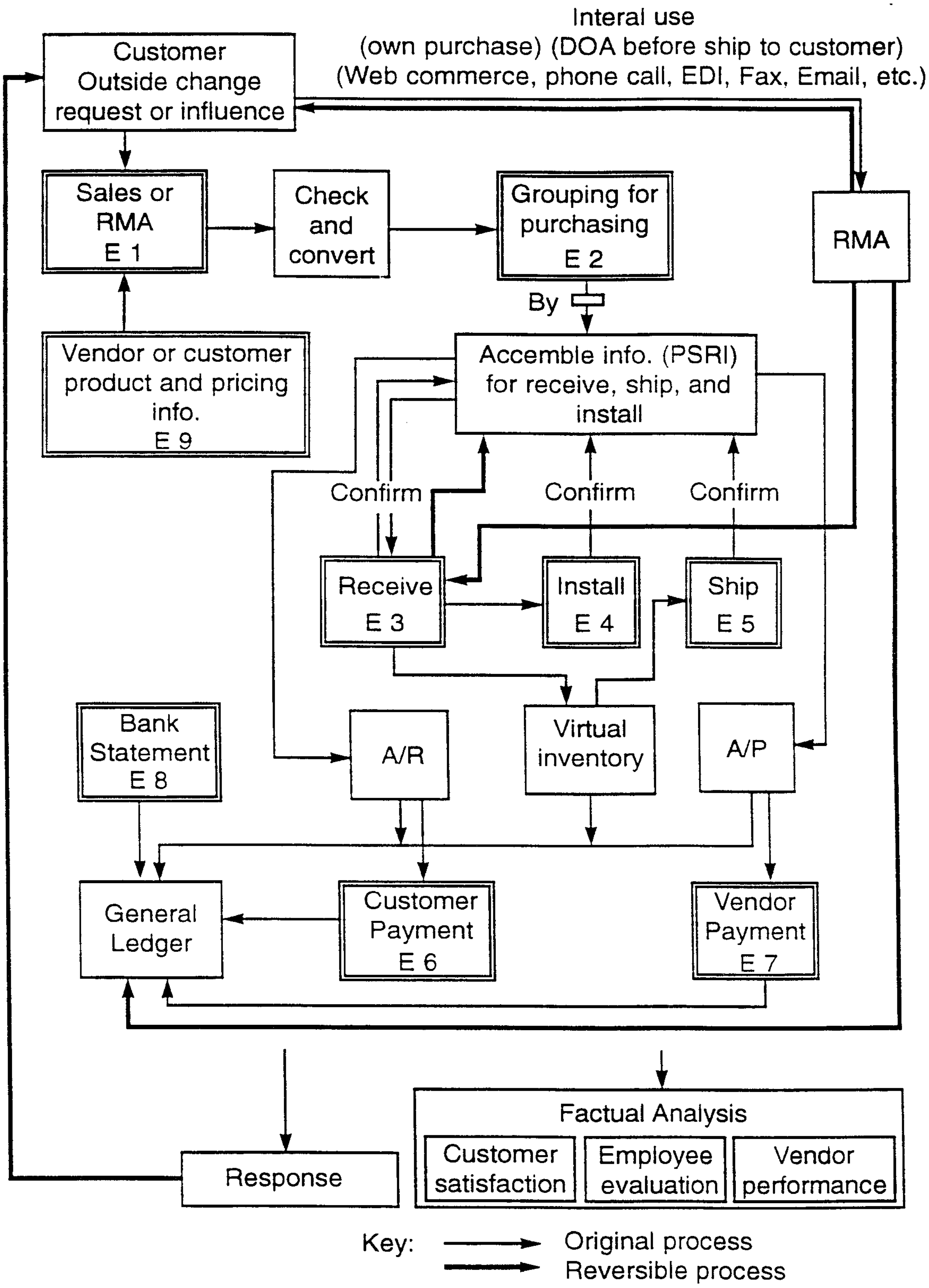
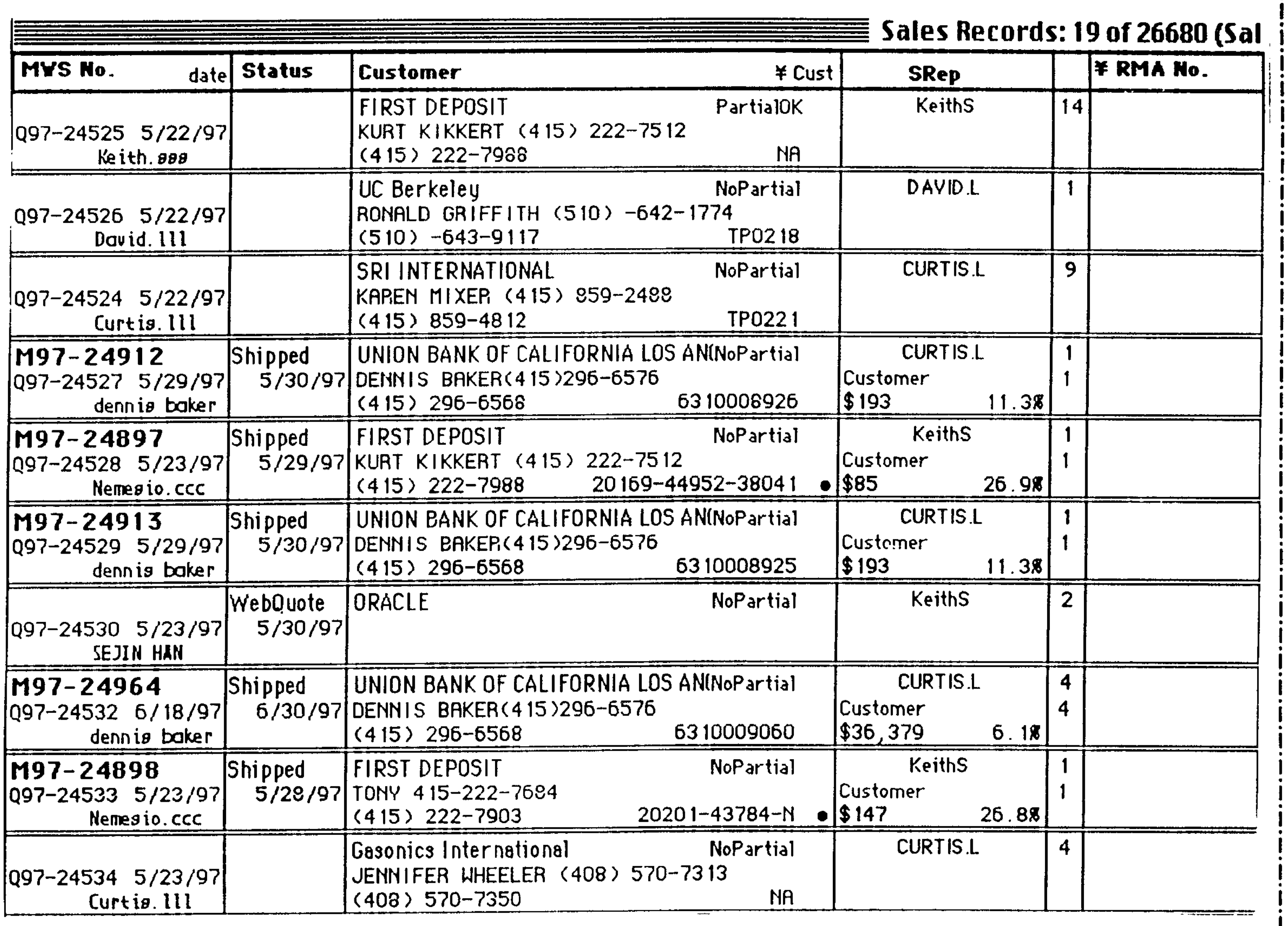

Interal use
(own purchase) (DOA before ship to customer)
(Web commerce, phone call, EDI, Fax, Email, etc.)
Customer
Outside change
request or influence
Sales or
RMA
E 1
Check
and
convert
Grouping for
purchasing
E 2
RMA
By
Vendor or customer
product and pricing
info.
E 9
Accemble info. (PSRI)
for receive, ship, and
install
Confirm
Confirm
Confirm
Receive
E 3
Install
E 4
Ship
E 5
Bank
Statement
E 8
A/R
Virtual
inventory
A/P
General
Ledger
Customer
Payment
E 6
Vendor
Payment
E 7
Factual Analysis
Customer
satisfaction
Employee
evaluation
Vendor
performance
Response
Key:
Original process
Reversible process

FIG. 59

Fig. 60

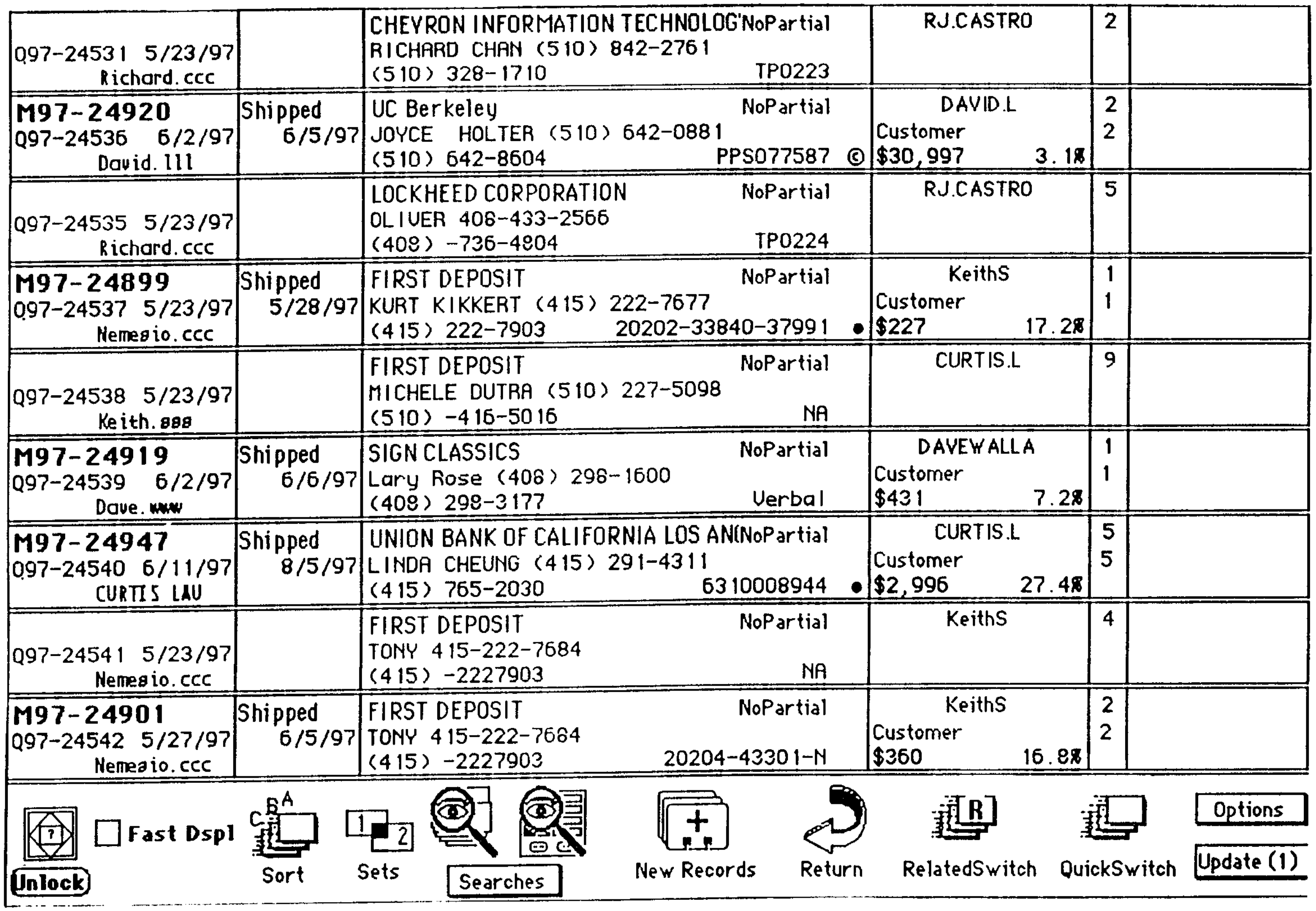
Fig.60A	Fig.60C
Fig.60B	Fig.60D



Sales Records: 19 of 26680 (Sal

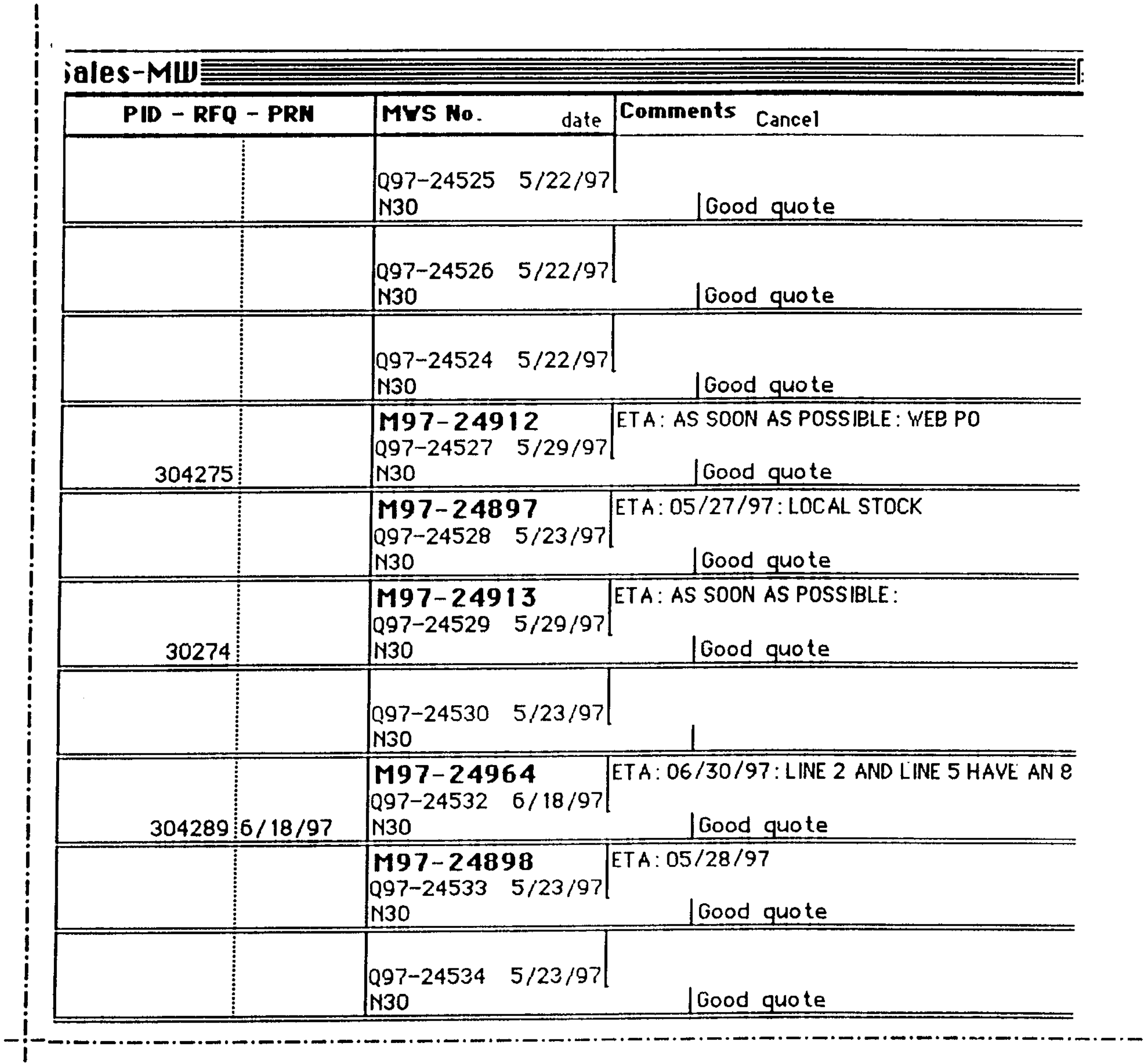
MVS No. date	Status	Customer	¥ Cust	SRep		¥ RMA No.
Q97-24525 5/22/97 Keith.ggg		FIRST DEPOSIT KURT KIKKERT (415) 222-7512 (415) 222-7968	Partial0K NA	KeithS	14	
Q97-24526 5/22/97 David.111		UC Berkeley RONALD GRIFFITH (510) -642-1774 (510) -643-9117	NoPartial TP0218	DAVID.L	1	
Q97-24524 5/22/97 Curtis.111		SRI INTERNATIONAL KAREN MIXER (415) 859-2488 (415) 859-4812	NoPartial TP0221	CURTIS.L	9	
M97-24912 Q97-24527 5/29/97 dennis baker	Shipped 5/30/97	UNION BANK OF CALIFORNIA LOS AN DENNIS BAKER(415)296-6576 (415) 296-6568	NoPartial 6310006926	CURTIS.L Customer $193 11.3%	1 1	
M97-24897 Q97-24528 5/23/97 Nemesio.ccc	Shipped 5/29/97	FIRST DEPOSIT KURT KIKKERT (415) 222-7512 (415) 222-7988	NoPartial 20169-44952-38041 ●	KeithS Customer $85 26.9%	1 1	
M97-24913 Q97-24529 5/29/97 dennis baker	Shipped 5/30/97	UNION BANK OF CALIFORNIA LOS AN DENNIS BAKER(415)296-6576 (415) 296-6568	NoPartial 6310008925	CURTIS.L Customer $193 11.3%	1 1	
Q97-24530 5/23/97 SEJIN HAN	WebQuote 5/30/97	ORACLE	NoPartial	KeithS	2	
M97-24964 Q97-24532 6/18/97 dennis baker	Shipped 6/30/97	UNION BANK OF CALIFORNIA LOS AN DENNIS BAKER(415)296-6576 (415) 296-6568	NoPartial 6310009060	CURTIS.L Customer $36,379 6.1%	4 4	
M97-24898 Q97-24533 5/23/97 Nemesio.ccc	Shipped 5/28/97	FIRST DEPOSIT TONY 415-222-7684 (415) 222-7903	NoPartial 20201-43784-N ●	KeithS Customer $147 26.8%	1 1	
Q97-24534 5/23/97 Curtis.111		Gasonics International JENNIFER WHEELER (408) 570-7313 (408) 570-7350	NoPartial NA	CURTIS.L	4	

FIG. 60A



Q97-24531 5/23/97 Richard.ccc		CHEVRON INFORMATION TECHNOLOG NoPartial RICHARD CHAN (510) 842-2761 (510) 328-1710 TP0223	RJ.CASTRO	2	
M97-24920 Q97-24536 6/2/97 David.111	Shipped 6/5/97	UC Berkeley NoPartial JOYCE HOLTER (510) 642-0881 (510) 642-8604 PPS077587 ©	DAVID.L Customer $30,997 3.1%	2 2	
Q97-24535 5/23/97 Richard.ccc		LOCKHEED CORPORATION NoPartial OLIVER 408-433-2566 (408) -736-4804 TP0224	RJ.CASTRO	5	
M97-24899 Q97-24537 5/23/97 Nemesio.ccc	Shipped 5/28/97	FIRST DEPOSIT NoPartial KURT KIKKERT (415) 222-7677 (415) 222-7903 20202-33840-37991 ●	KeithS Customer $227 17.2%	1 1	
Q97-24538 5/23/97 Keith.ggg		FIRST DEPOSIT NoPartial MICHELE DUTRA (510) 227-5098 (510) -416-5016 NA	CURTIS.L	9	
M97-24919 Q97-24539 6/2/97 Dave.www	Shipped 6/6/97	SIGN CLASSICS NoPartial Lary Rose (408) 298-1600 (408) 298-3177 Verbal	DAVEWALLA Customer $431 7.2%	1 1	
M97-24947 Q97-24540 6/11/97 CURTIS LAU	Shipped 8/5/97	UNION BANK OF CALIFORNIA LOS AN NoPartial LINDA CHEUNG (415) 291-4311 (415) 765-2030 6310008944 ●	CURTIS.L Customer $2,996 27.4%	5 5	
Q97-24541 5/23/97 Nemesio.ccc		FIRST DEPOSIT NoPartial TONY 415-222-7684 (415) -2227903 NA	KeithS	4	
M97-24901 Q97-24542 5/27/97 Nemesio.ccc	Shipped 6/5/97	FIRST DEPOSIT NoPartial TONY 415-222-7684 (415) -2227903 20204-43301-N	KeithS Customer $360 16.8%	2 2	

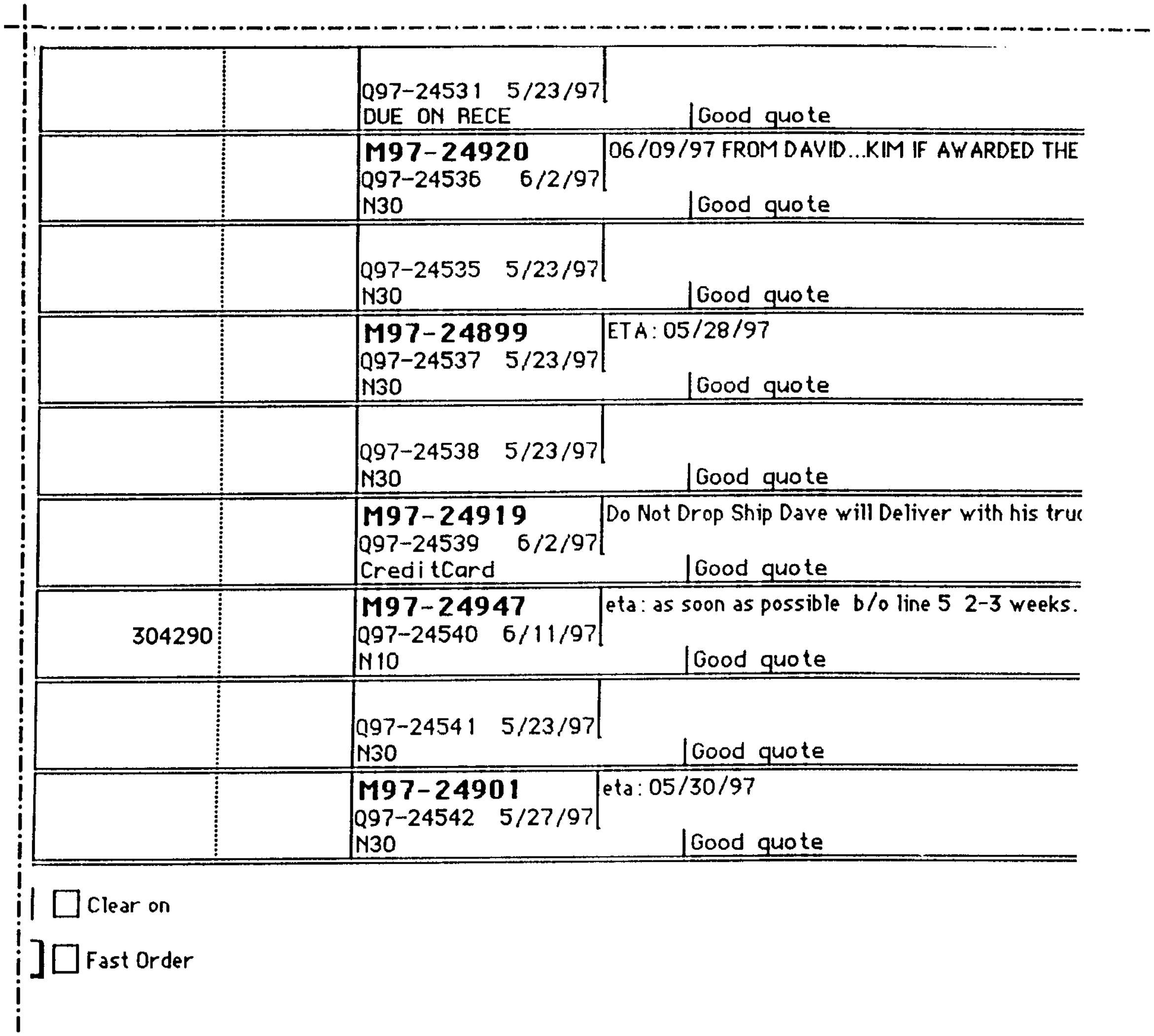
FIG. 60B



Sales-MIU

PID - RFQ - PRN		MVS No.	date	Comments Cancel
		Q97-24525 N30	5/22/97	Good quote
		Q97-24526 N30	5/22/97	Good quote
		Q97-24524 N30	5/22/97	Good quote
304275		**M97-24912** Q97-24527 N30	5/29/97	ETA: AS SOON AS POSSIBLE: WEB PO Good quote
		M97-24897 Q97-24528 N30	5/23/97	ETA: 05/27/97: LOCAL STOCK Good quote
30274		**M97-24913** Q97-24529 N30	5/29/97	ETA: AS SOON AS POSSIBLE: Good quote
		Q97-24530 N30	5/23/97	
304289	6/18/97	**M97-24964** Q97-24532 N30	6/18/97	ETA: 06/30/97: LINE 2 AND LINE 5 HAVE AN 8 Good quote
		M97-24898 Q97-24533 N30	5/23/97	ETA: 05/28/97 Good quote
		Q97-24534 N30	5/23/97	Good quote

FIG. 60C



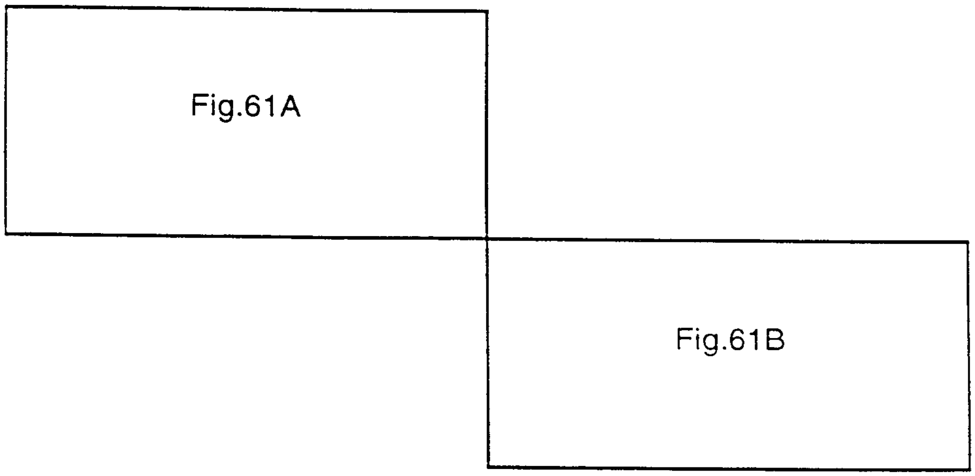
		Q97-24531 5/23/97 DUE ON RECE		Good quote
		M97-24920 Q97-24536 6/2/97 N30	06/09/97 FROM DAVID...KIM IF AWARDED THE	Good quote
		Q97-24535 5/23/97 N30		Good quote
		M97-24899 Q97-24537 5/23/97 N30	ETA: 05/28/97	Good quote
		Q97-24538 5/23/97 N30		Good quote
		M97-24919 Q97-24539 6/2/97 CreditCard	Do Not Drop Ship Dave will Deliver with his tru	Good quote
304290		**M97-24947** Q97-24540 6/11/97 N10	eta: as soon as possible b/o line 5 2-3 weeks.	Good quote
		Q97-24541 5/23/97 N30		Good quote
		M97-24901 Q97-24542 5/27/97 N30	eta: 05/30/97	Good quote

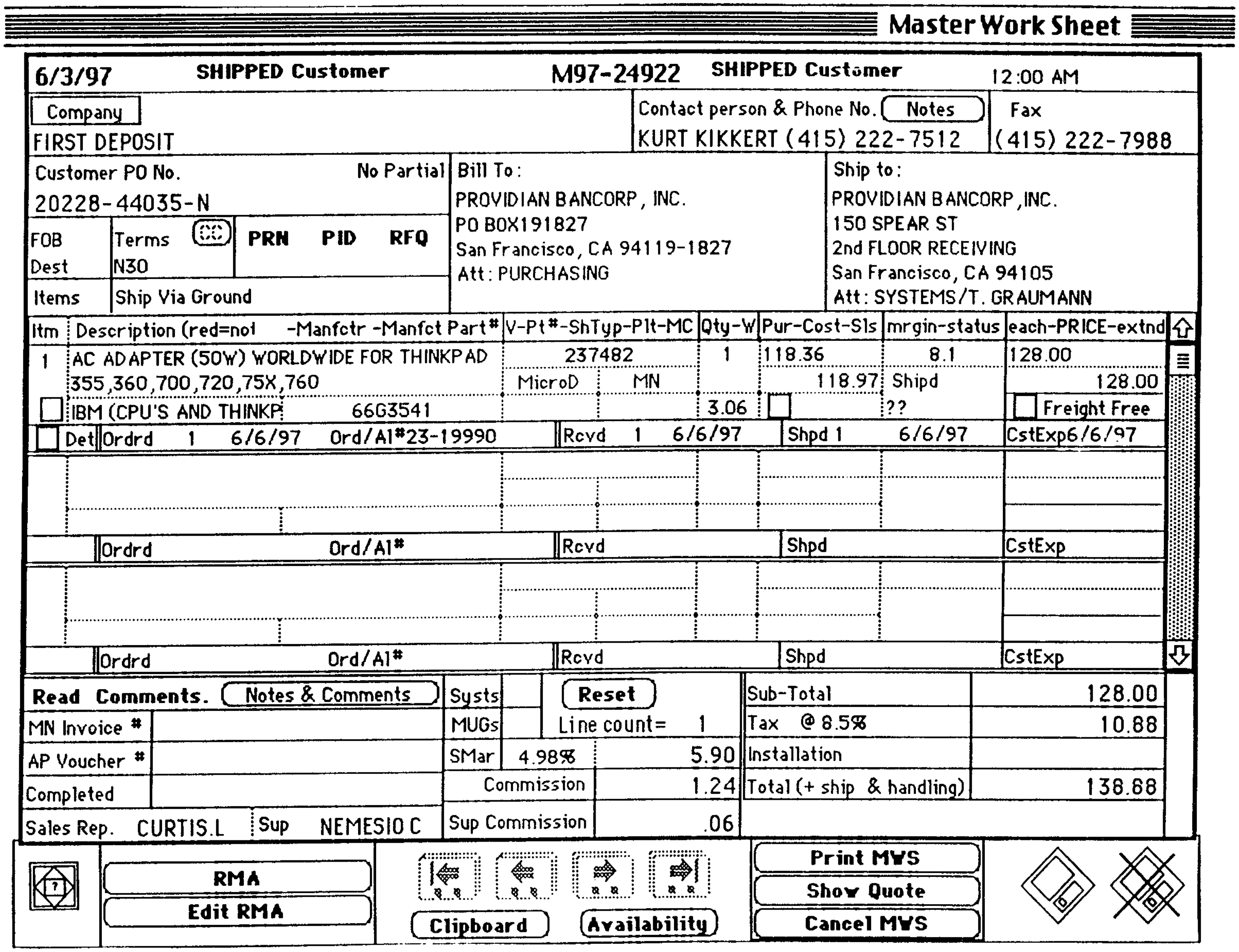
☐ Clear on

☐ Fast Order

FIG. 60D

Fig. 61





6/3/97 **SHIPPED Customer** M97-24922 **SHIPPED Customer** 12:00 AM

Company: FIRST DEPOSIT

Contact person & Phone No.: KURT KIKKERT (415) 222-7512

Fax: (415) 222-7988

Customer PO No.: 20228-44035-N

No Partial

FOB: Dest

Terms: N30

Items: Ship Via Ground

Bill To:
PROVIDIAN BANCORP, INC.
PO BOX191827
San Francisco, CA 94119-1827
Att: PURCHASING

Ship to:
PROVIDIAN BANCORP, INC.
150 SPEAR ST
2nd FLOOR RECEIVING
San Francisco, CA 94105
Att: SYSTEMS/T. GRAUMANN

Itm	Description (red=nol -Manfctr -Manfct Part#	V-Pt#-ShTyp-Plt-MC	Qty-W	Pur-Cost-Sls	mrgin-status	each-PRICE-extnd
1	AC ADAPTER (50W) WORLDWIDE FOR THINKPAD	237482	1	118.36	8.1	128.00
	355,360,700,720,75X,760	MicroD MN		118.97	Shipd	128.00
☐	IBM (CPU'S AND THINKP 66G3541		3.06	☐	??	☐ Freight Free
☐ Det	Ordrd 1 6/6/97 Ord/AI#23-19990	Rcvd 1 6/6/97		Shpd 1 6/6/97		CstExp6/6/97
	Ordrd Ord/AI#	Rcvd		Shpd		CstExp
	Ordrd Ord/AI#	Rcvd		Shpd		CstExp

Read Comments.

MN Invoice #:

AP Voucher #:

Completed:

Sales Rep. CURTIS.L Sup NEMESIO C

Systs:

MUGs:

SMar 4.98% 5.90

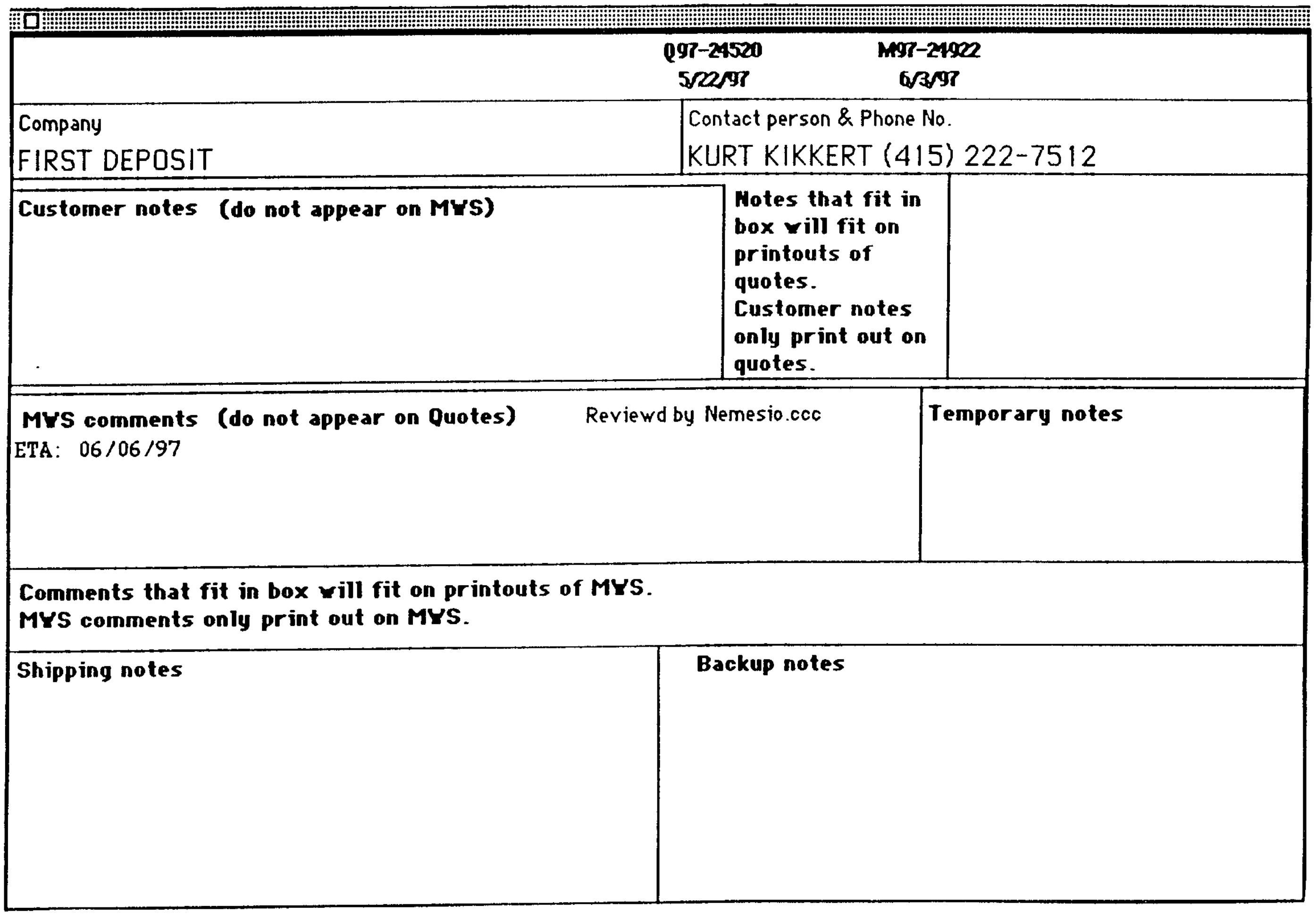
Commission 1.24

Sup Commission .06

Line count= 1

Sub-Total	128.00
Tax @ 8.5%	10.88
Installation	
Total (+ ship & handling)	138.88

FIG. 61A



Q97-24520
5/22/97

M97-24922
6/3/97

Company
FIRST DEPOSIT

Contact person & Phone No.
KURT KIKKERT (415) 222-7512

Customer notes (do not appear on MWS)

Notes that fit in box will fit on printouts of quotes. Customer notes only print out on quotes.

MWS comments (do not appear on Quotes)
ETA: 06/06/97

Reviewd by Nemesio.ccc

Temporary notes

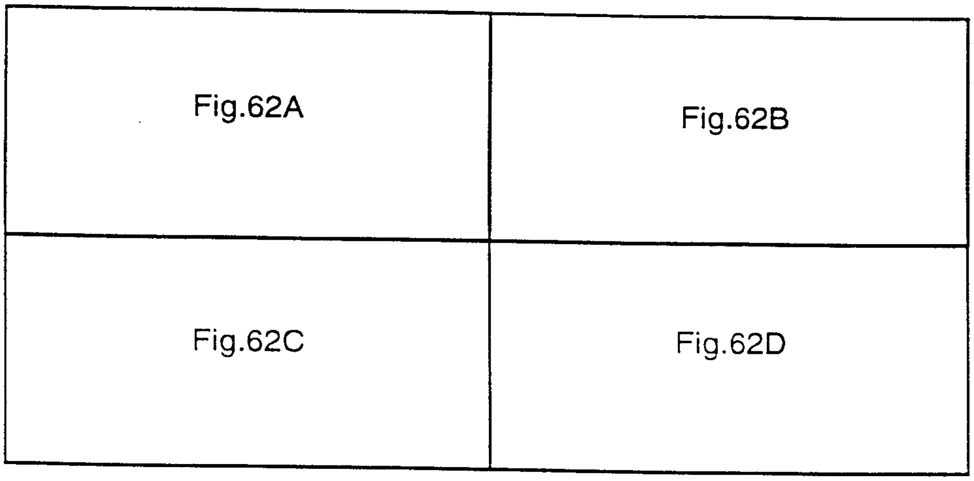
Comments that fit in box will fit on printouts of MWS.
MWS comments only print out on MWS.

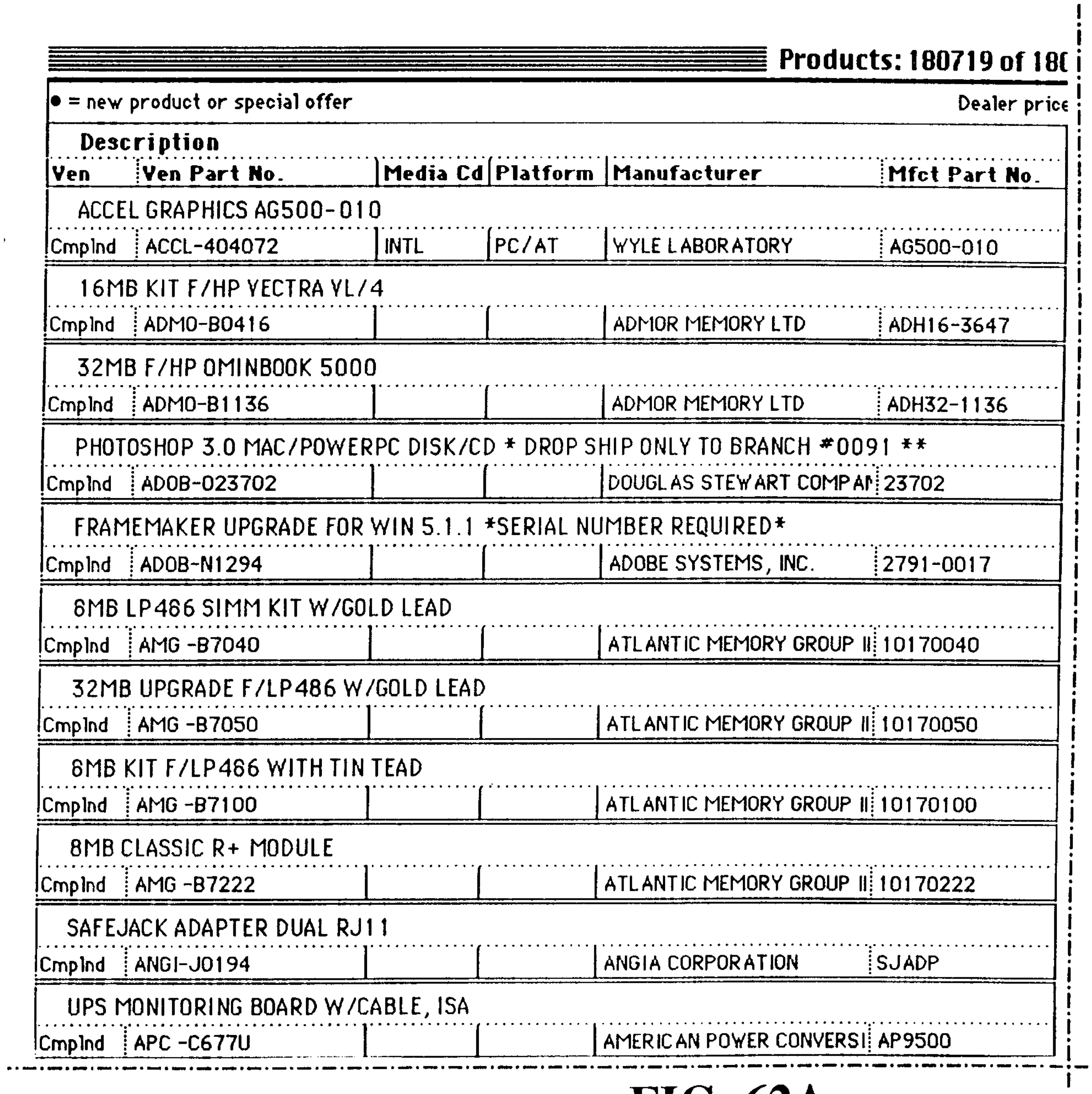
Shipping notes

Backup notes

FIG. 61B

Fig. 62





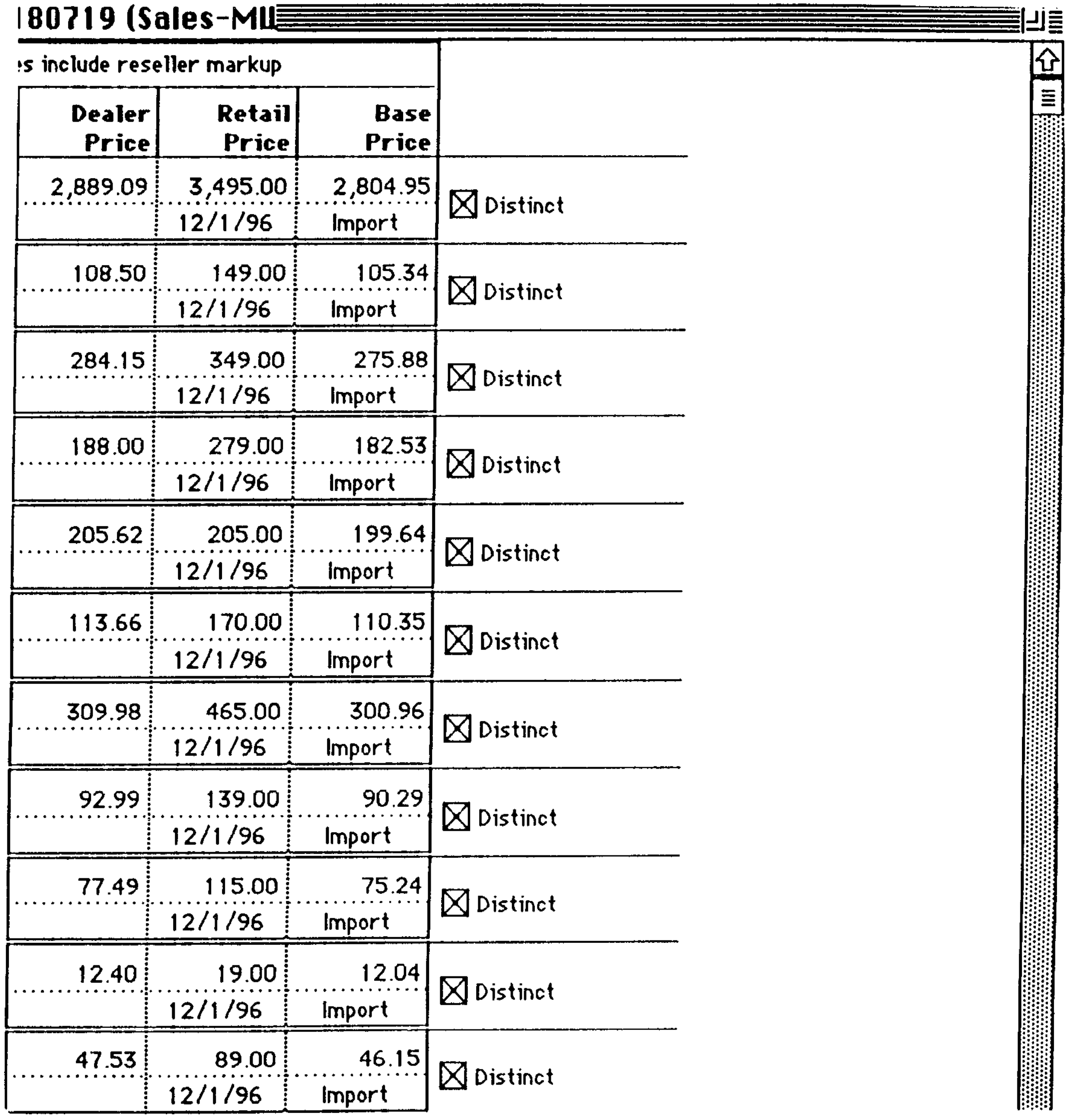
Products: 180719 of 18

● = new product or special offer

Dealer price

Description					
Ven	**Ven Part No.**	**Media Cd**	**Platform**	**Manufacturer**	**Mfct Part No.**
ACCEL GRAPHICS AG500-010					
CmpInd	ACCL-404072	INTL	PC/AT	WYLE LABORATORY	AG500-010
16MB KIT F/HP VECTRA YL/4					
CmpInd	ADMO-B0416			ADMOR MEMORY LTD	ADH16-3647
32MB F/HP OMINBOOK 5000					
CmpInd	ADMO-B1136			ADMOR MEMORY LTD	ADH32-1136
PHOTOSHOP 3.0 MAC/POWERPC DISK/CD * DROP SHIP ONLY TO BRANCH #0091 **					
CmpInd	ADOB-023702			DOUGLAS STEWART COMPA	23702
FRAMEMAKER UPGRADE FOR WIN 5.1.1 *SERIAL NUMBER REQUIRED*					
CmpInd	ADOB-N1294			ADOBE SYSTEMS, INC.	2791-0017
8MB LP466 SIMM KIT W/GOLD LEAD					
CmpInd	AMG -B7040			ATLANTIC MEMORY GROUP II	10170040
32MB UPGRADE F/LP486 W/GOLD LEAD					
CmpInd	AMG -B7050			ATLANTIC MEMORY GROUP II	10170050
8MB KIT F/LP466 WITH TIN TEAD					
CmpInd	AMG -B7100			ATLANTIC MEMORY GROUP II	10170100
8MB CLASSIC R+ MODULE					
CmpInd	AMG -B7222			ATLANTIC MEMORY GROUP II	10170222
SAFEJACK ADAPTER DUAL RJ11					
CmpInd	ANGI-J0194			ANGIA CORPORATION	SJADP
UPS MONITORING BOARD W/CABLE, ISA					
CmpInd	APC -C677U			AMERICAN POWER CONVERSI	AP9500

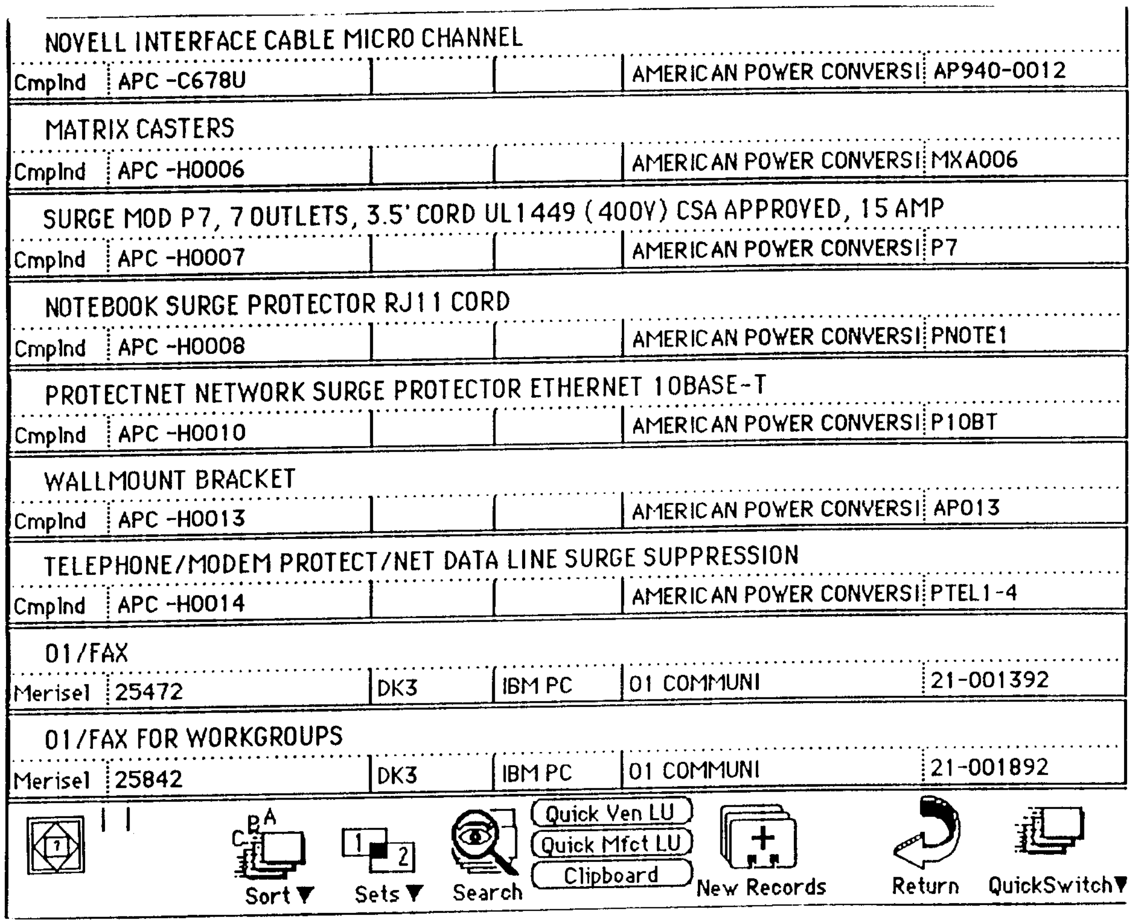
FIG. 62A



:s include reseller markup

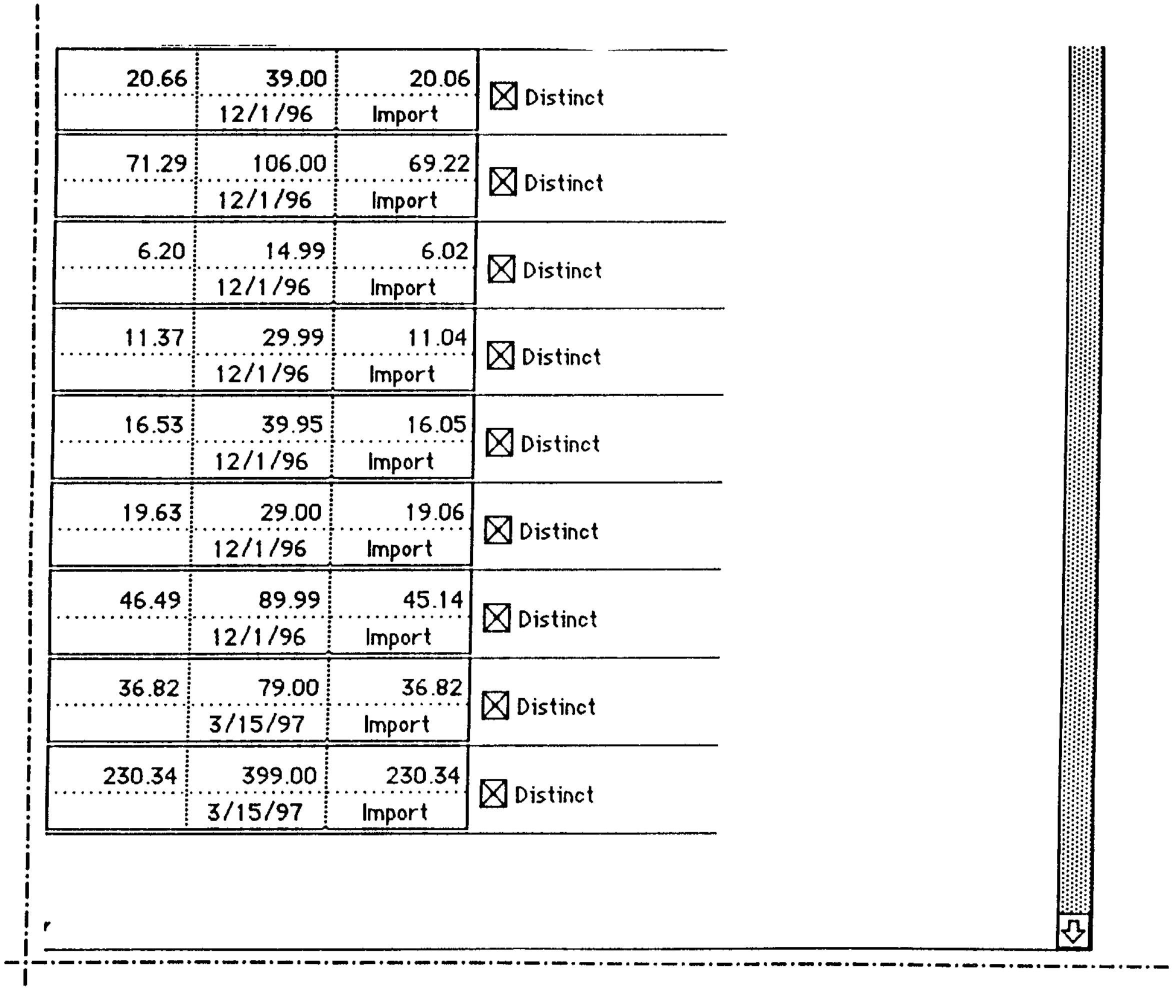
Dealer Price	Retail Price	Base Price	
2,889.09	3,495.00 12/1/96	2,804.95 Import	☒ Distinct
108.50	149.00 12/1/96	105.34 Import	☒ Distinct
284.15	349.00 12/1/96	275.88 Import	☒ Distinct
188.00	279.00 12/1/96	182.53 Import	☒ Distinct
205.62	205.00 12/1/96	199.64 Import	☒ Distinct
113.66	170.00 12/1/96	110.35 Import	☒ Distinct
309.98	465.00 12/1/96	300.96 Import	☒ Distinct
92.99	139.00 12/1/96	90.29 Import	☒ Distinct
77.49	115.00 12/1/96	75.24 Import	☒ Distinct
12.40	19.00 12/1/96	12.04 Import	☒ Distinct
47.53	89.00 12/1/96	46.15 Import	☒ Distinct

FIG. 62B



NOVELL INTERFACE CABLE MICRO CHANNEL						
	CmpInd	APC -C678U			AMERICAN POWER CONVERSI	AP940-0012
MATRIX CASTERS						
	CmpInd	APC -H0006			AMERICAN POWER CONVERSI	MXA006
SURGE MOD P7, 7 OUTLETS, 3.5' CORD UL1449 (400V) CSA APPROVED, 15 AMP						
	CmpInd	APC -H0007			AMERICAN POWER CONVERSI	P7
NOTEBOOK SURGE PROTECTOR RJ11 CORD						
	CmpInd	APC -H0008			AMERICAN POWER CONVERSI	PNOTE1
PROTECTNET NETWORK SURGE PROTECTOR ETHERNET 10BASE-T						
	CmpInd	APC -H0010			AMERICAN POWER CONVERSI	P10BT
WALLMOUNT BRACKET						
	CmpInd	APC -H0013			AMERICAN POWER CONVERSI	AP013
TELEPHONE/MODEM PROTECT/NET DATA LINE SURGE SUPPRESSION						
	CmpInd	APC -H0014			AMERICAN POWER CONVERSI	PTEL1-4
01/FAX						
	Merisel	25472	DK3	IBM PC	01 COMMUNI	21-001392
01/FAX FOR WORKGROUPS						
	Merisel	25842	DK3	IBM PC	01 COMMUNI	21-001892

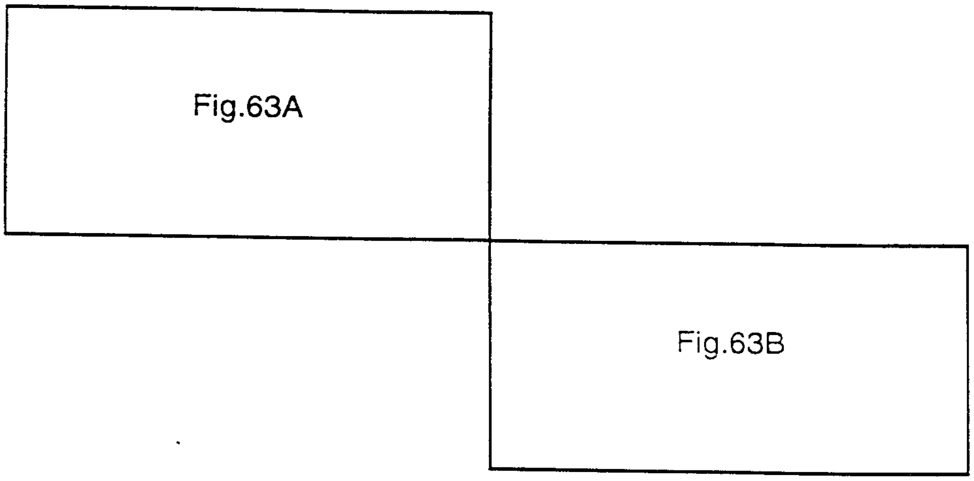
FIG. 62C

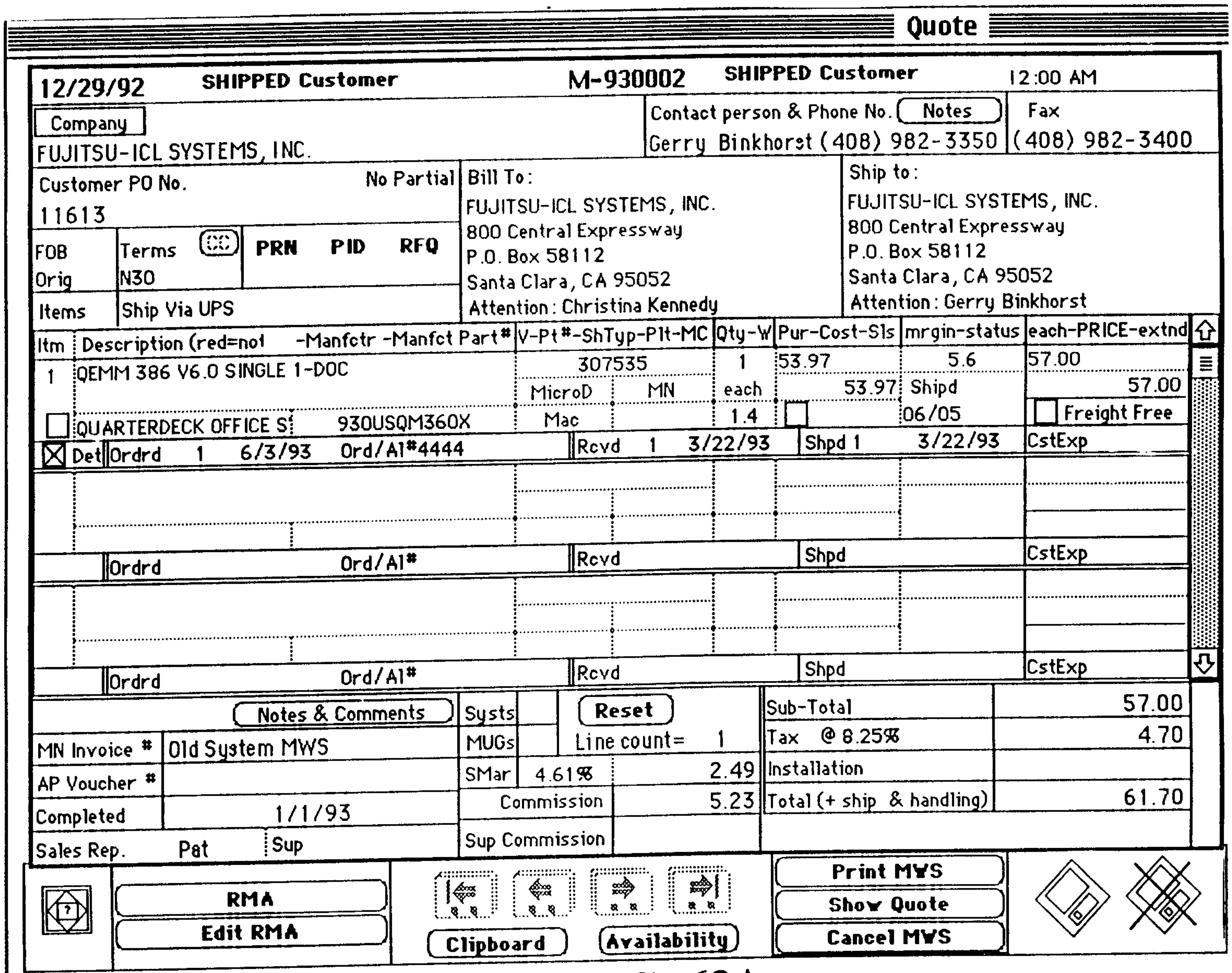


20.66	39.00 12/1/96	20.06 Import	☒ Distinct
71.29	106.00 12/1/96	69.22 Import	☒ Distinct
6.20	14.99 12/1/96	6.02 Import	☒ Distinct
11.37	29.99 12/1/96	11.04 Import	☒ Distinct
16.53	39.95 12/1/96	16.05 Import	☒ Distinct
19.63	29.00 12/1/96	19.06 Import	☒ Distinct
46.49	89.99 12/1/96	45.14 Import	☒ Distinct
36.82	79.00 3/15/97	36.82 Import	☒ Distinct
230.34	399.00 3/15/97	230.34 Import	☒ Distinct

FIG. 62D

Fig. 63





12/29/92 SHIPPED Customer M-930002 SHIPPED Customer 12:00 AM

Company
FUJITSU-ICL SYSTEMS, INC.

Contact person & Phone No. Notes
Gerry Binkhorst (408) 982-3350

Fax
(408) 982-3400

Customer PO No. No Partial
11613

FOB
Orig

Terms
N30

PRN PID RFQ

Items Ship Via UPS

Bill To:
FUJITSU-ICL SYSTEMS, INC.
800 Central Expressway
P.O. Box 58112
Santa Clara, CA 95052
Attention: Christina Kennedy

Ship to:
FUJITSU-ICL SYSTEMS, INC.
800 Central Expressway
P.O. Box 58112
Santa Clara, CA 95052
Attention: Gerry Binkhorst

Itm	Description (red=not -Manfctr -Manfct Part#	V-Pt#-ShTyp-Plt-MC	Qty-W	Pur-Cost-Sls	mrgin-status	each-PRICE-extnd
1	QEMM 386 V6.0 SINGLE 1-DOC	307535	1	53.97	5.6	57.00
		MicroD MN	each	53.97	Shipd	57.00
☐	QUARTERDECK OFFICE S 930USQM360X	Mac	1.4	☐	06/05	☐ Freight Free
☒ Det	Ordrd 1 6/3/93 Ord/Al#4444	Rcvd 1 3/22/93		Shpd 1 3/22/93		CstExp
	Ordrd Ord/Al#	Rcvd		Shpd		CstExp
	Ordrd Ord/Al#	Rcvd		Shpd		CstExp

Notes & Comments

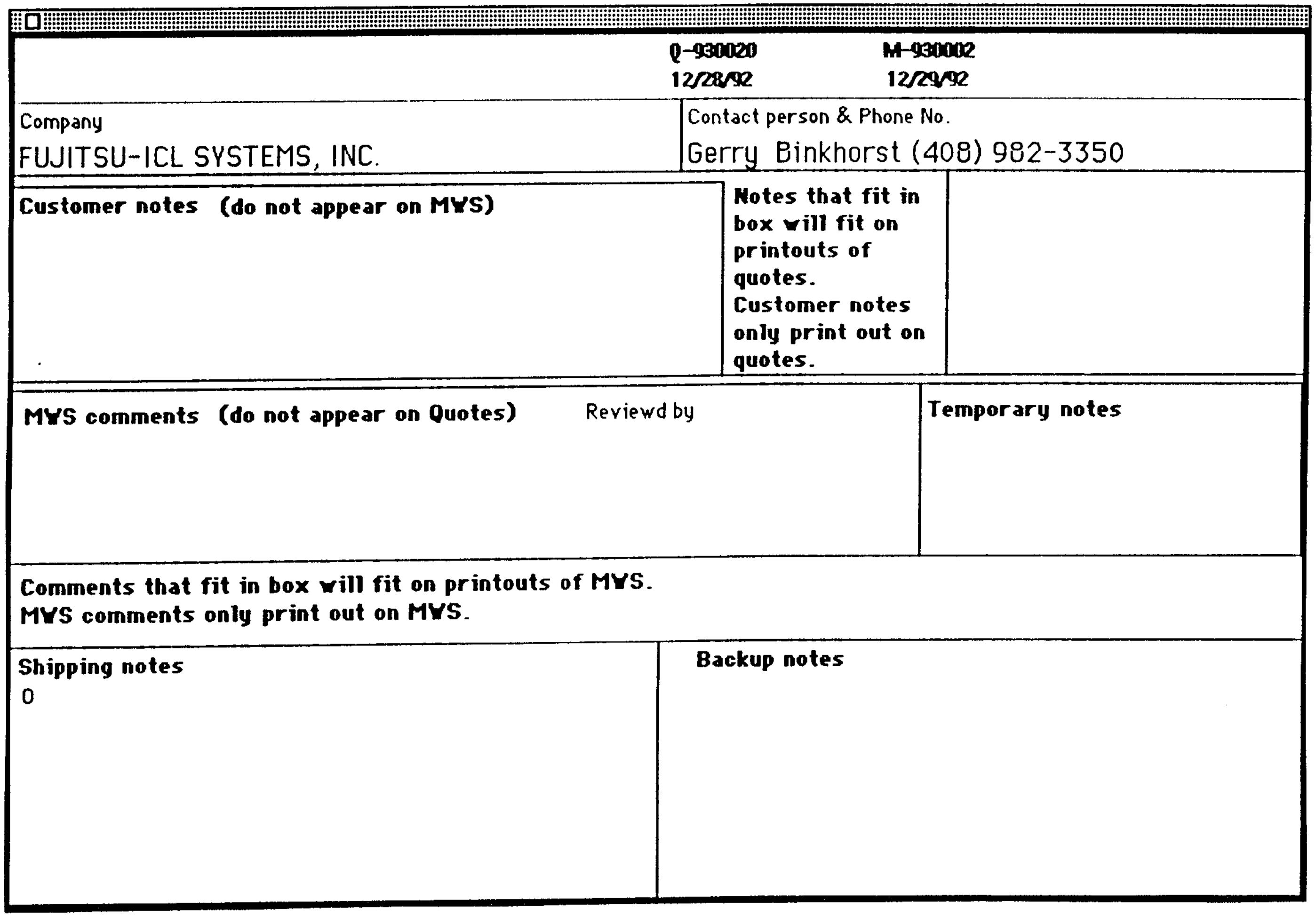
MN Invoice # Old System MWS
AP Voucher #
Completed 1/1/93
Sales Rep. Pat Sup

Systs
MUGs
SMar 4.61% 2.49
Commission 5.23
Sup Commission

Reset
Line count= 1

Sub-Total	57.00
Tax @ 8.25%	4.70
Installation	
Total (+ ship & handling)	61.70

FIG. 63A



Q-930020 12/28/92

M-930002 12/29/92

Company
FUJITSU-ICL SYSTEMS, INC.

Contact person & Phone No.
Gerry Binkhorst (408) 982-3350

Customer notes (do not appear on MVS)

Notes that fit in box will fit on printouts of quotes. Customer notes only print out on quotes.

MVS comments (do not appear on Quotes)

Reviewd by

Temporary notes

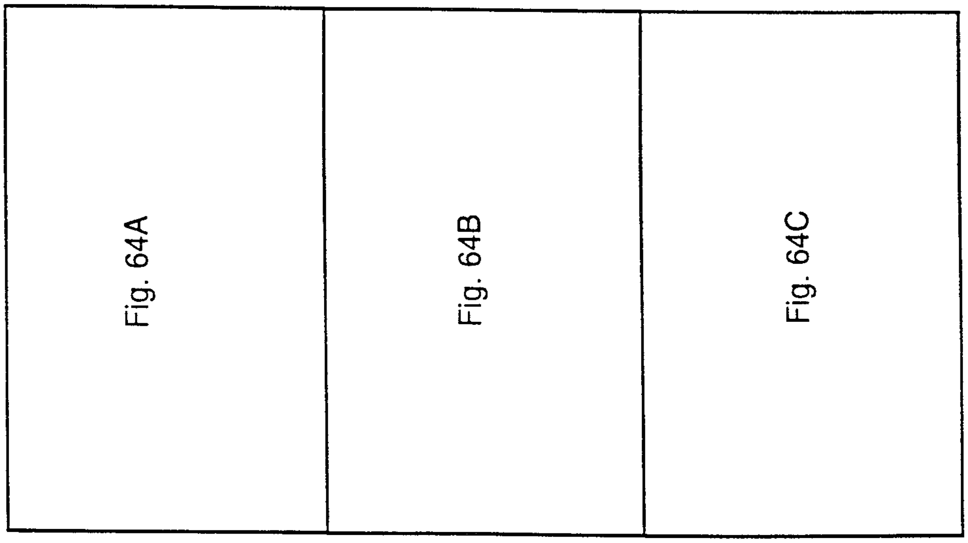
Comments that fit in box will fit on printouts of MVS.
MVS comments only print out on MVS.

Shipping notes
0

Backup notes

FIG. 63B

Fig. 64



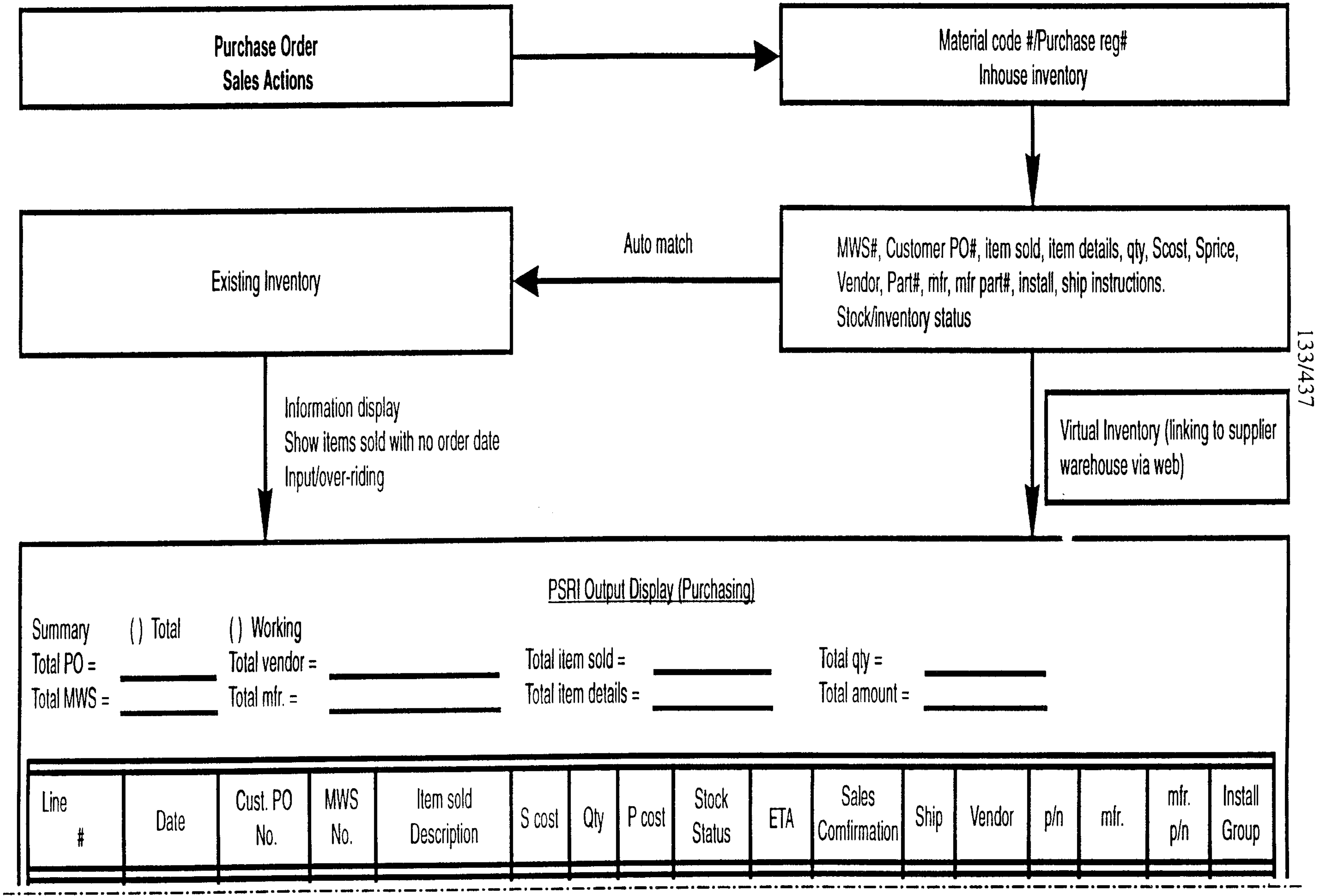

Purchase Order
Sales Actions
Material code #/Purchase reg#
Inhouse inventory
MWS#, Customer PO#, item sold, item details, qty, Scost, Sprice,
Vendor, Part#, mfr, mfr part#, install, ship instructions.
Stock/inventory status
Auto match
Existing Inventory
Virtual Inventory (linking to supplier warehouse via web)
Information display
Show items sold with no order date
Input/over-riding
PSRI Output Display (Purchasing)
Summary
( ) Total
( ) Working
Total PO =
Total MWS =
Total vendor =
Total mfr. =
Total item sold =
Total item details =
Total qty =
Total amount =
Line #
Date
Cust. PO No.
MWS No.
Item sold Description
S cost
Qty
P cost
Stock Status
ETA
Sales Comfirmation
Ship
Vendor
p/n
mfr.
mfr. p/n
Install Group

FIG.64A

1	10/11/97	1556-WX	28515	Compaq SCSI HD Critical		5		B/O	12/11/97	Credit card	NP	Techdata	12345	Compaq	121-001	1
2	10/11/97	1556-WX	28515	Compaq proliant Track		24		B/O			P	Techdata	13554	Compaq	121-002	1
3	10/11/97	1556-WX	28515	Compaq memory		10		stock			NP	Merisel	13554	Compaq	121-003	1
4	10/11/97	1444PA	28415	HP Vectra		3		short stock		COD	P	Ingram Micro	13554	HP	HR-001	2
5	10/11/97	1444PA	28415	HP memory		4		Inventory			P	Microage	13554	HP	1F-001	2
6	10/11/97	1444PA	28415	HP Printer Drop Ship		200		B/O			NP	Computer land	13554	HP	H1-0Aa	2

▭ = All headings are sortable.

* All items are selectable and expand (double click) into item deails.

* Replacement MWS = Red color

FIG.64B

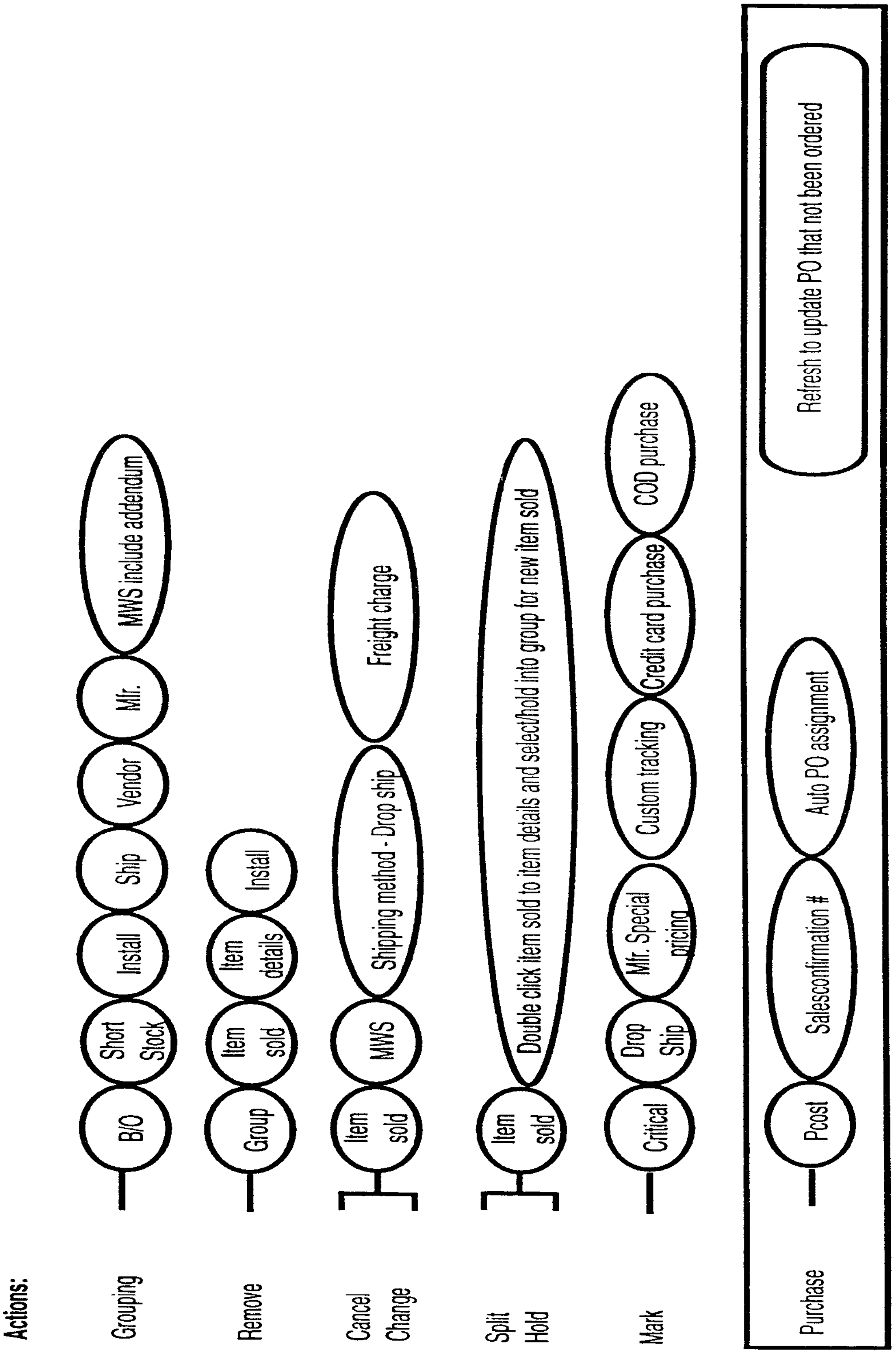
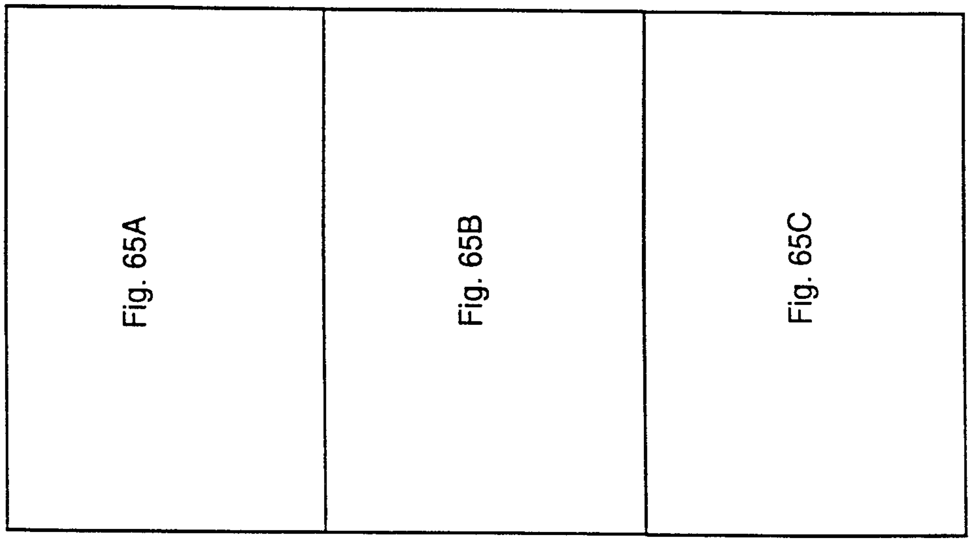
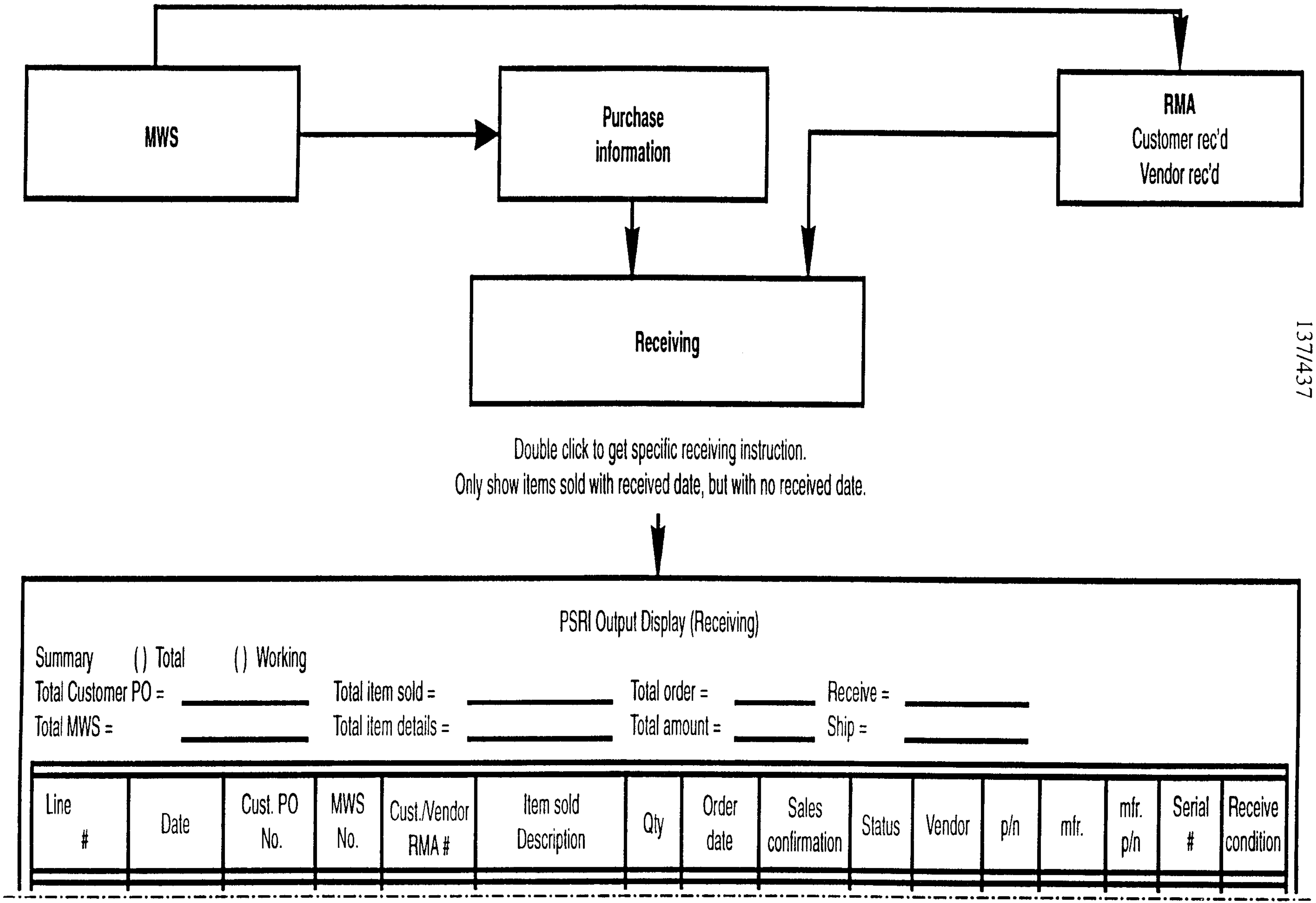

Actions:
Grouping
B/O
Short Stock
Install
Ship
Vendor
Mfr.
MWS include addendum
Remove
Group
Item sold
Item details
Install
Cancel Change
Item sold
MWS
Shipping method - Drop ship
Freight charge
Split Hold
Item sold
Double click item sold to item details and select/hold into group for new item sold
Mark
Critical
Drop Ship
Mfr. Special pricing
Custom tracking
Credit card purchase
COD purchase
Purchase
Pcost
Salesconfirmation #
Auto PO assignment
Refresh to update PO that not been ordered

FIG.64C

Fig. 65





Double click to get specific receiving instruction.
Only show items sold with received date, but with no received date.

PSRI Output Display (Receiving)

Summary ( ) Total ( ) Working

Total Customer PO = ______ Total item sold = ______ Total order = ______ Receive = ______

Total MWS = ______ Total item details = ______ Total amount = ______ Ship = ______

Line #	Date	Cust. PO No.	MWS No.	Cust./Vendor RMA #	Item sold Description	Qty	Order date	Sales confirmation	Status	Vendor	p/n	mfr.	mfr. p/n	Serial #	Receive condition

FIG.65A

1	10/11/97	1556-WX	28515		Compaq SCSI HD Critical	5	11/20/97	Credit card	Hold Note	Techdata	12345	Compaq			
2	10/11/97	1556-WX	28515		Compaq proliant Track	24	11/20/97		Refuse	Techdata	13554	Compaq			
3	10/11/97	1556-WX	28515		Compaq memory	10	11/19/97		stock	Merisel	13554	Compaq			
4	10/11/97	1444PA	28415		HP Vectra	3	11/20/97	COD	OK	Ingram Micro	13554	HP			
5	10/11/97	1444PA	28415		HP memory	4	11/21/97		OK	Microage	13554	HP			
6	10/11/97	1444PA	28415		HP Printer Drop Ship	200	11/12/97		OK Note	Computer land	13554	HP			

▭ = All headings are sortable.

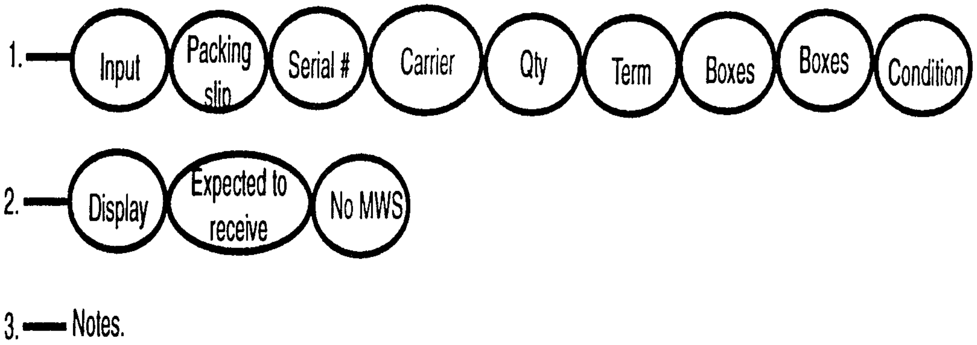
' All items are selectable and expand (double click) into item deails.

' Replacement MWS = Red color

FIG.65B

Actions:

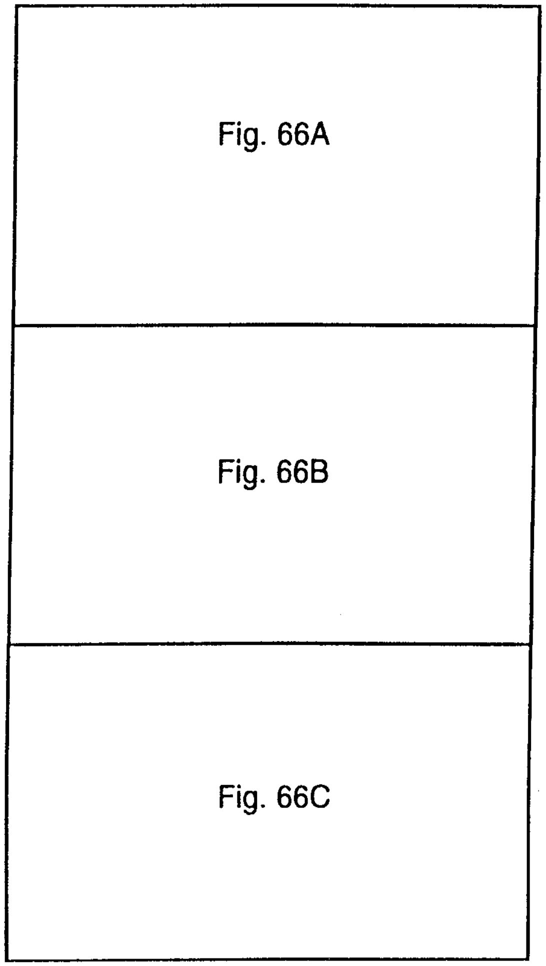
Receiving

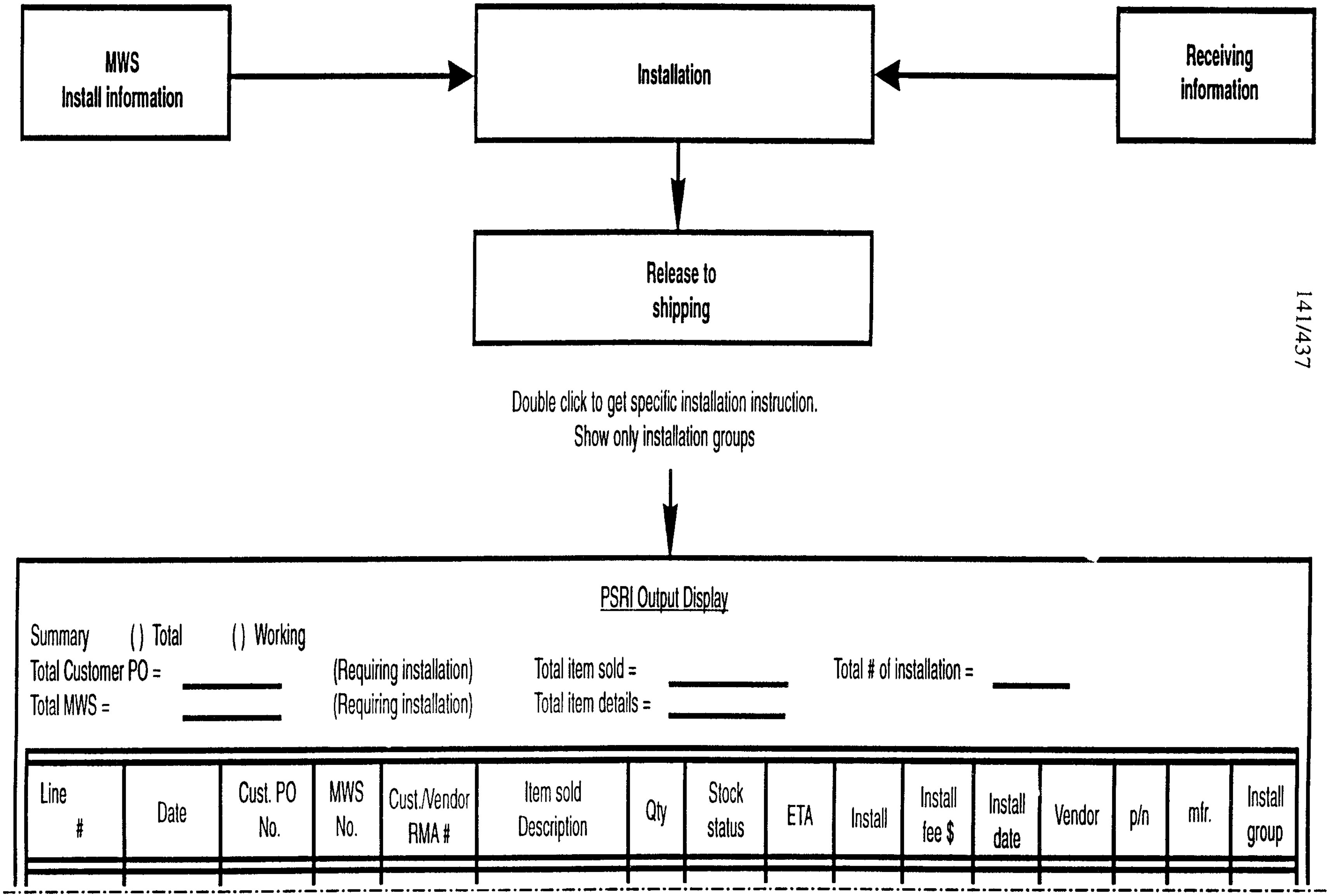


1. Expected to receive will exclude refusal items.
2. Expected to ship will exclude refusal items, hold items and items with COD/cash term.
3. Batch input for all packing slips and items. The system automatically match input with items that existing in the system to all items that received.

FIG.65C

Fig. 66




MWS
Install information
Installation
Receiving
information
Release to
shipping
Double click to get specific installation instruction.
Show only installation groups

PSRI Output Display

Summary ( ) Total ( ) Working
Total Customer PO = ______ (Requiring installation) Total item sold = ______ Total # of installation = ______
Total MWS = ______ (Requiring installation) Total item details = ______

Line #	Date	Cust. PO No.	MWS No.	Cust./Vendor RMA #	Item sold Description	Qty	Stock status	ETA	Install	Install fee $	Install date	Vendor	p/n	mfr.	Install group

FIG.66A

1	10/11/97	1556-WX	28515		Compaq SCSI HD Critical	5	B/O Notes	12/25/97	Y			Techdata	12345	Compaq	
2	10/11/97	1556-WX	28515		Compaq proliant Track	24	B/O Notes	12/11/97	N			Techdata	13554	Compaq	
3	10/11/97	1556-WX	28515		Compaq memory	10	stock Notes	-	Y			Merisel	13554	Compaq	
4	10/11/97	1444PA	28415		HP Vectra	3	Short stock Notes	-	Y			Ingram Micro	13554	HP	
5	10/11/97	1444PA	28415		HP memory	4	stock Notes	-	Y			Microage	13554	HP	
6	10/11/97	1444PA	28415		HP Printer Drop Ship	200	B/O Notes	12/5/97	Y			Computer land	13554	HP	

▭ = All headings are sortable.

* All items are selectable and expand (double click) into item deails.

* Replacement MWS = Red color

Option:
1. Show all need installation
2. Show only need to be installed with received date

FIG.66B

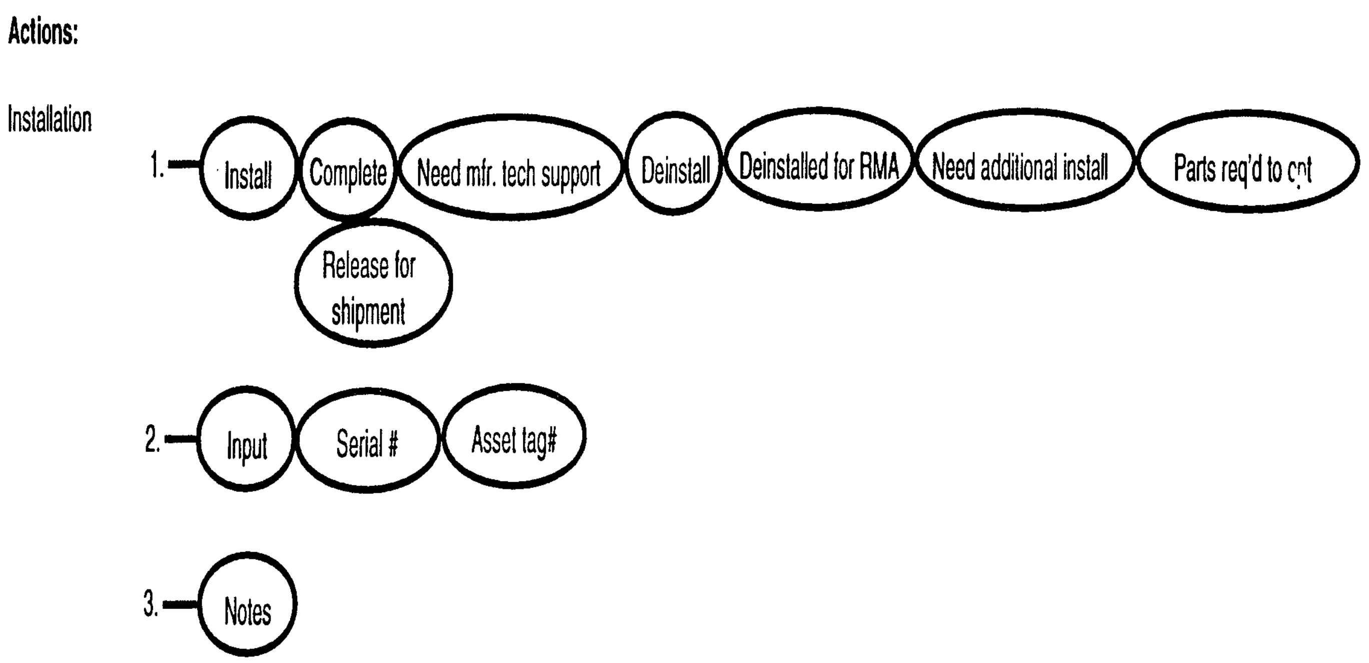
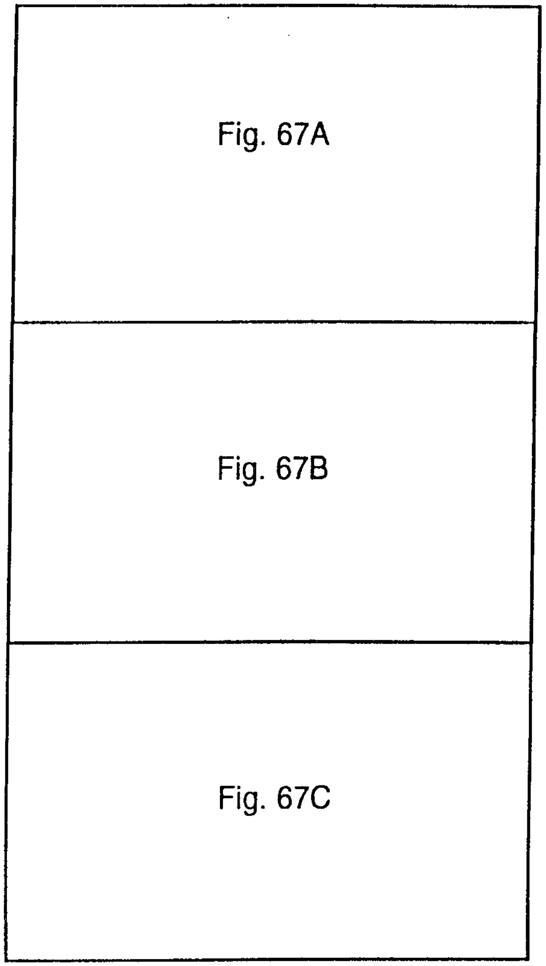

Actions:
Installation
1.
Install
Complete
Release for shipment
Need mfr. tech support
Deinstall
Deinstalled for RMA
Need additional install
Parts req'd to cnt
2.
Input
Serial #
Asset tag#
3.
Notes

FIG.66C

Fig. 67



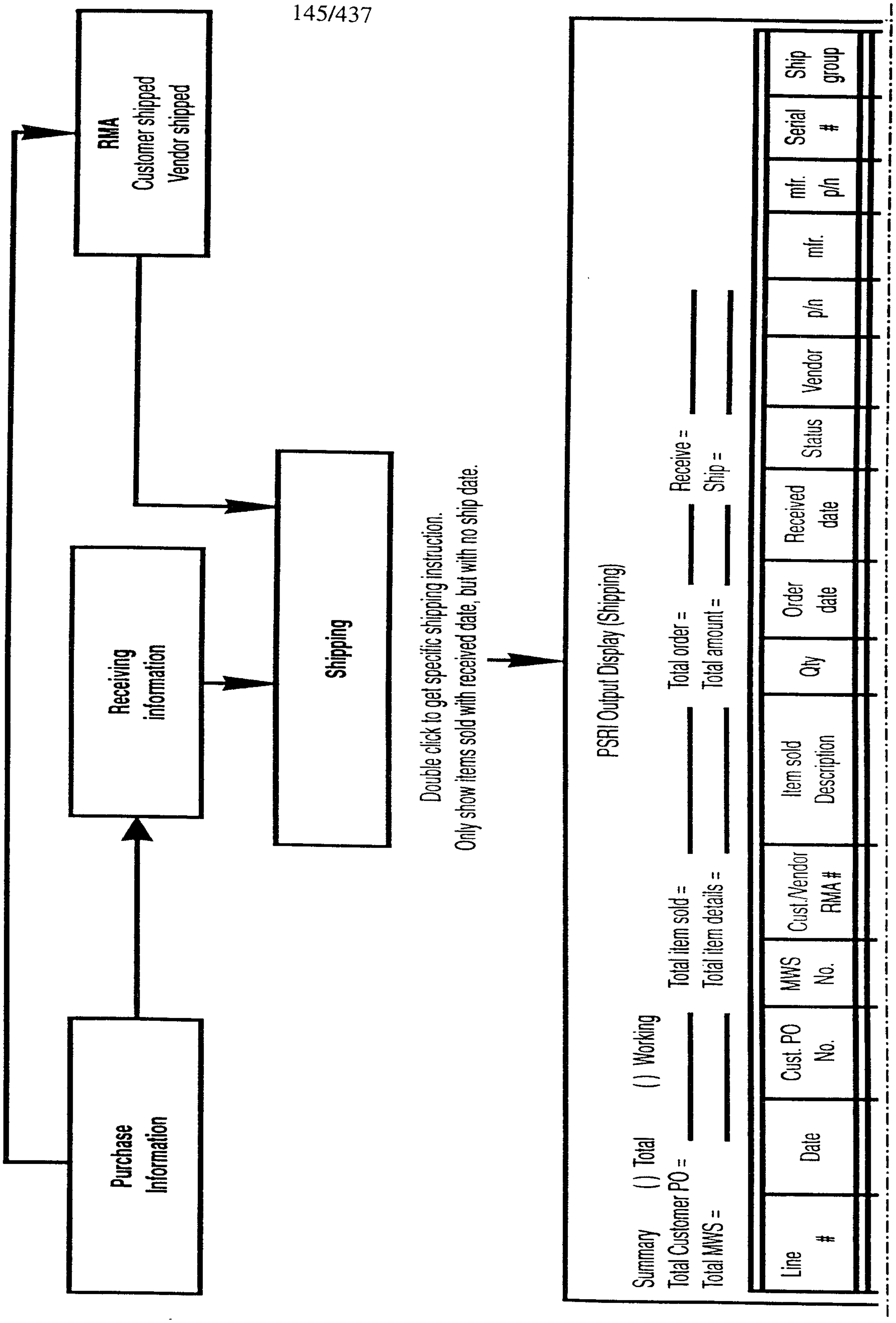
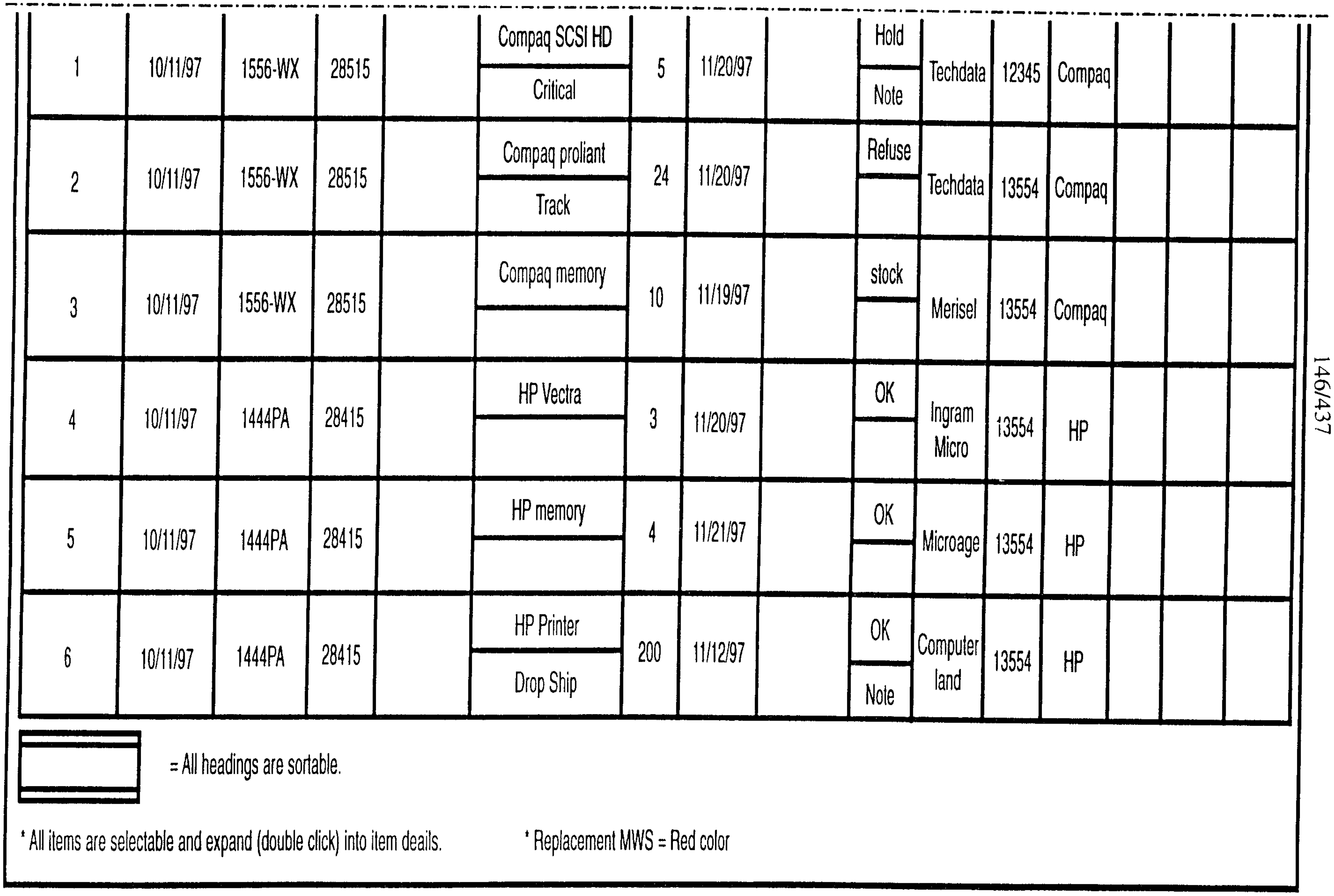

Purchase Information
Receiving information
RMA
Customer shipped
Vendor shipped
Shipping
Double click to get specific shipping instruction.
Only show items sold with received date, but with no ship date.
PSRI Output Display (Shipping)
Summary
( ) Total
( ) Working
Total Customer PO =
Total item sold =
Total order =
Receive =
Total MWS =
Total item details =
Total amount =
Ship =
Line #
Date
Cust. PO No.
MWS No.
Cust./Vendor RMA #
Item sold Description
Qty
Order date
Received date
Status
Vendor
p/n
mfr.
mfr. p/n
Serial #
Ship group

FIG.67A



1	10/11/97	1556-WX	28515		Compaq SCSI HD Critical	5	11/20/97		Hold Note	Techdata	12345	Compaq			
2	10/11/97	1556-WX	28515		Compaq proliant Track	24	11/20/97		Refuse	Techdata	13554	Compaq			
3	10/11/97	1556-WX	28515		Compaq memory	10	11/19/97		stock	Merisel	13554	Compaq			
4	10/11/97	1444PA	28415		HP Vectra	3	11/20/97		OK	Ingram Micro	13554	HP			
5	10/11/97	1444PA	28415		HP memory	4	11/21/97		OK	Microage	13554	HP			
6	10/11/97	1444PA	28415		HP Printer Drop Ship	200	11/12/97		OK Note	Computer land	13554	HP			

= All headings are sortable.

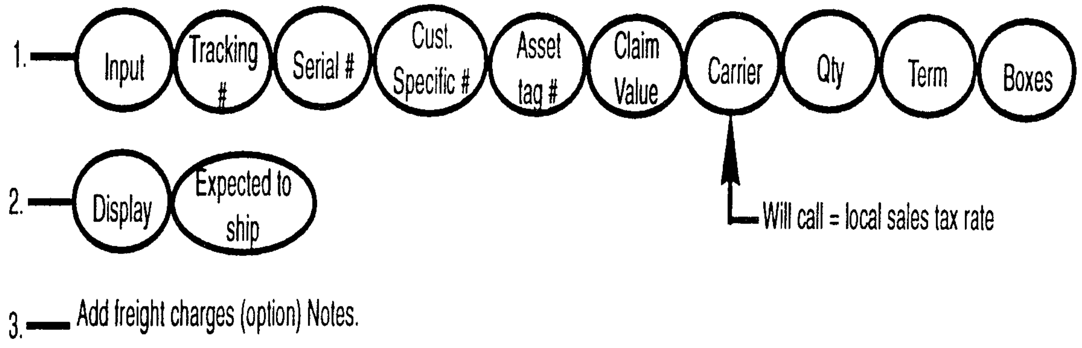
* All items are selectable and expand (double click) into item deails.

* Replacement MWS = Red color

FIG.67B

Actions:

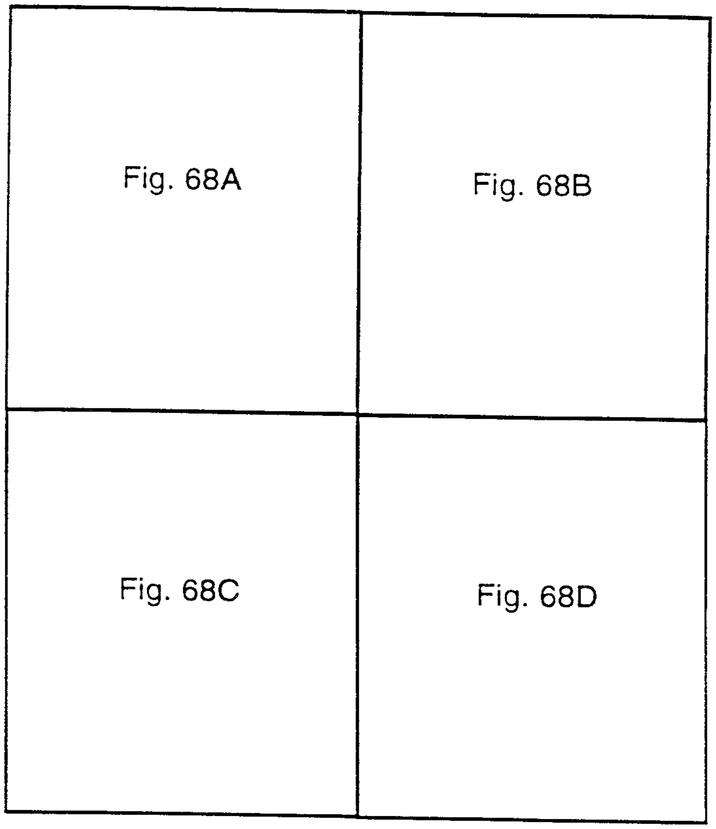
Shipping

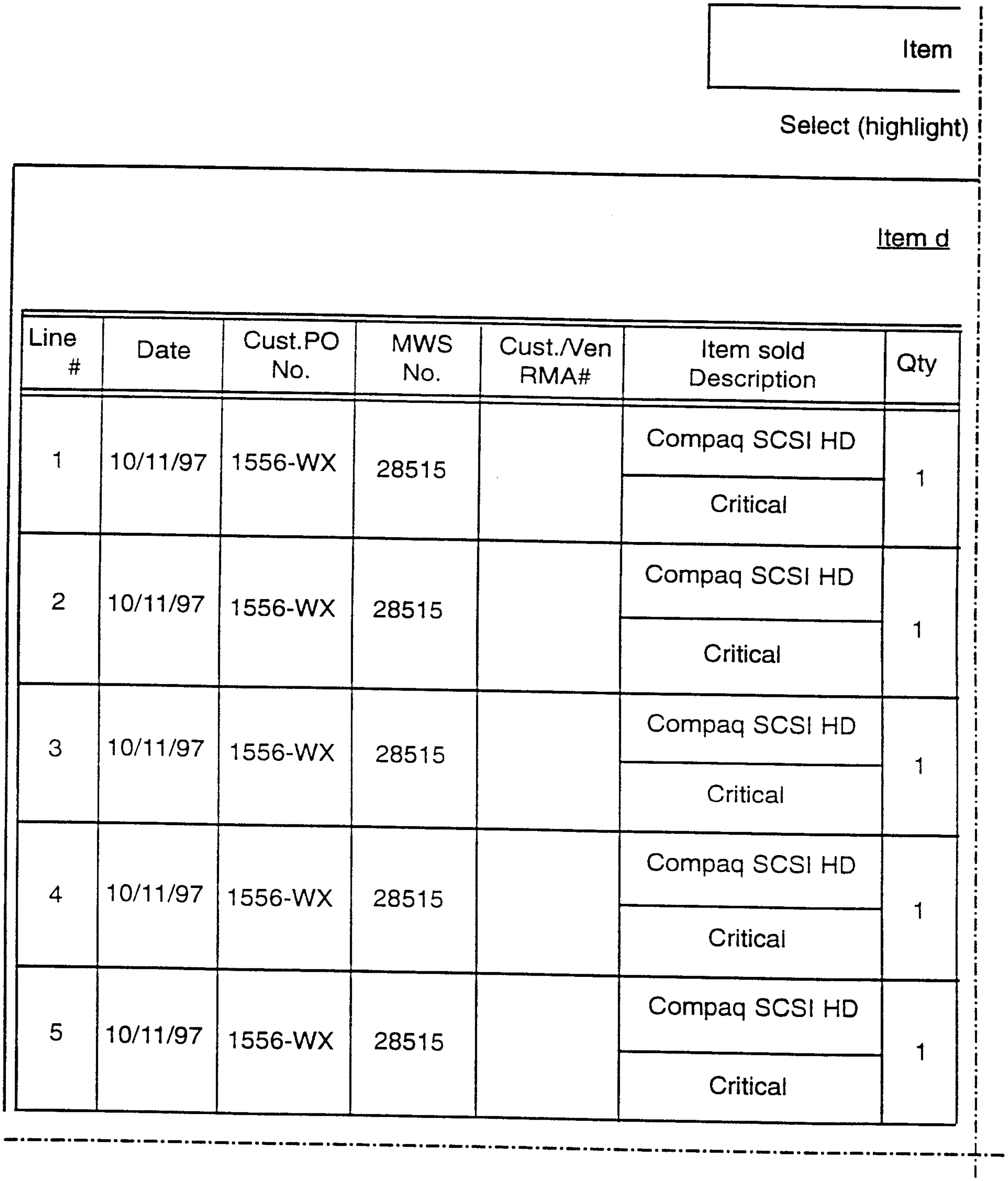


1. Expected to receive will exclude refusal items.
2. Expected to ship will exclude refusal items, hold items and items with COD/cash term.
3. Batch input for all packing slips and items. The system automatically match input with items that existing in the system to all items that received.

FIG.67C

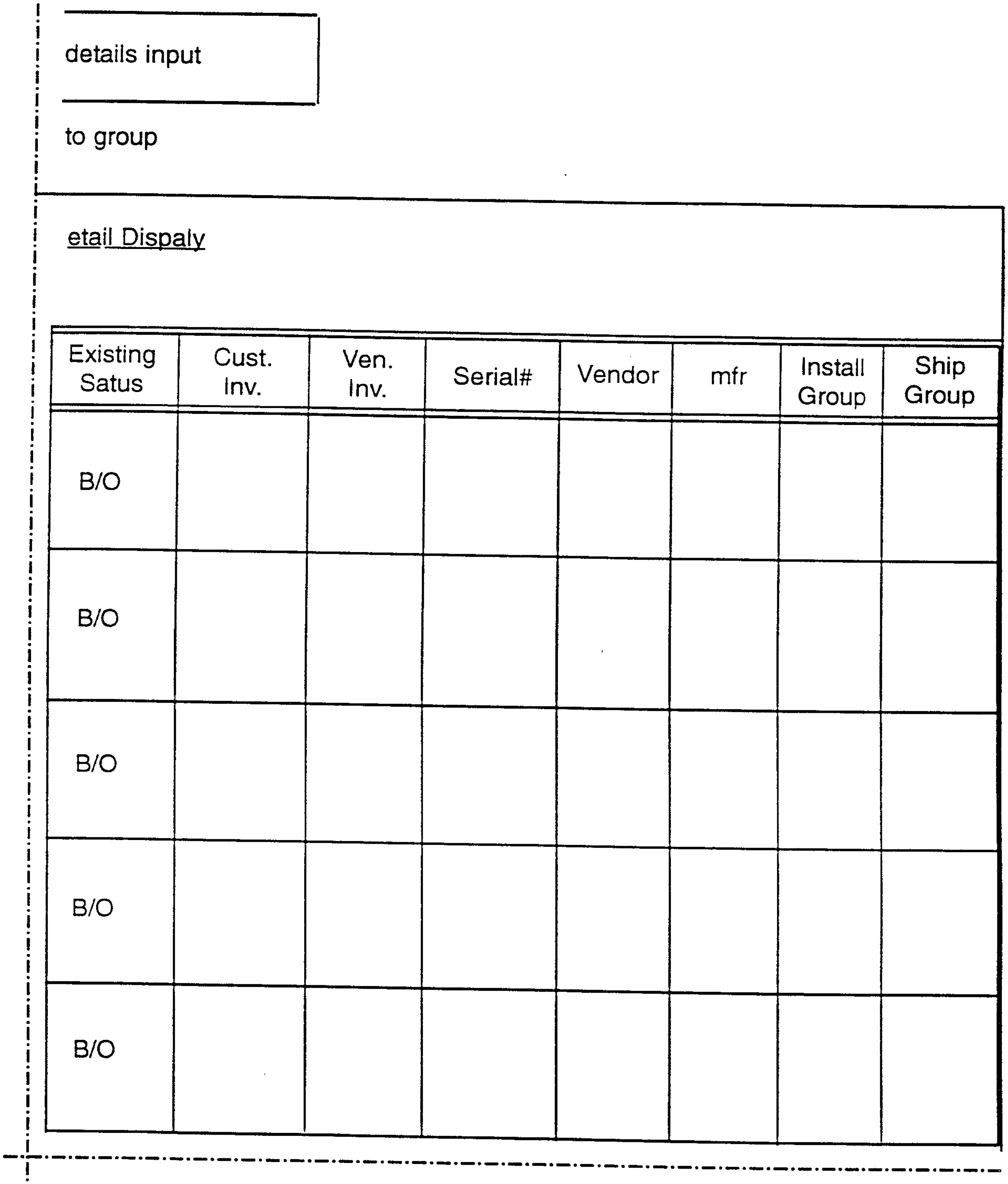
Fig. 68





Line #	Date	Cust.PO No.	MWS No.	Cust./Ven RMA#	Item sold Description	Qty
1	10/11/97	1556-WX	28515		Compaq SCSI HD Critical	1
2	10/11/97	1556-WX	28515		Compaq SCSI HD Critical	1
3	10/11/97	1556-WX	28515		Compaq SCSI HD Critical	1
4	10/11/97	1556-WX	28515		Compaq SCSI HD Critical	1
5	10/11/97	1556-WX	28515		Compaq SCSI HD Critical	1

Fig. 68 A



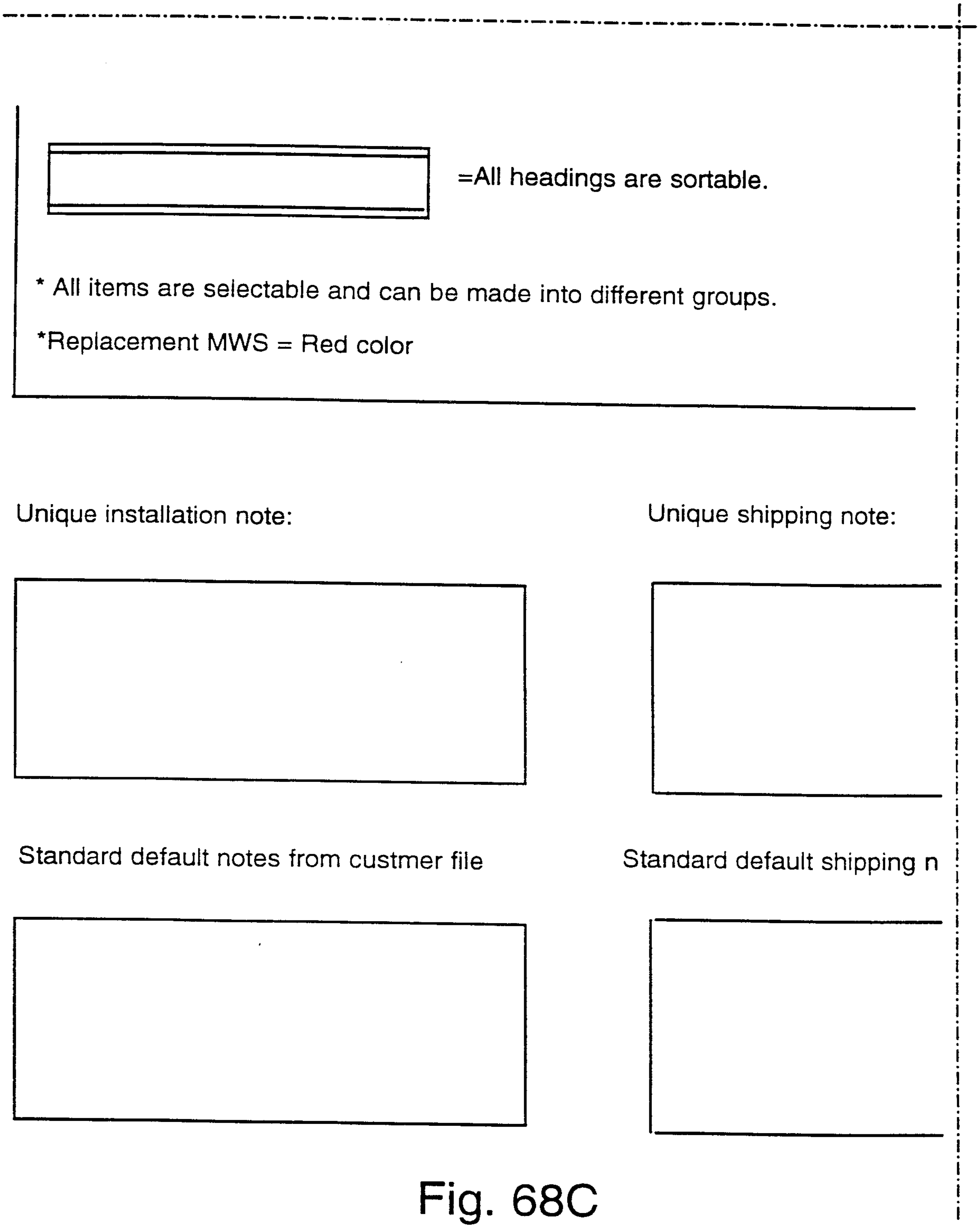
details input

to group

etail Dispaly

Existing Satus	Cust. Inv.	Ven. Inv.	Serial#	Vendor	mfr	Install Group	Ship Group
B/O							
B/O							
B/O							
B/O							
B/O							

Fig. 68 B



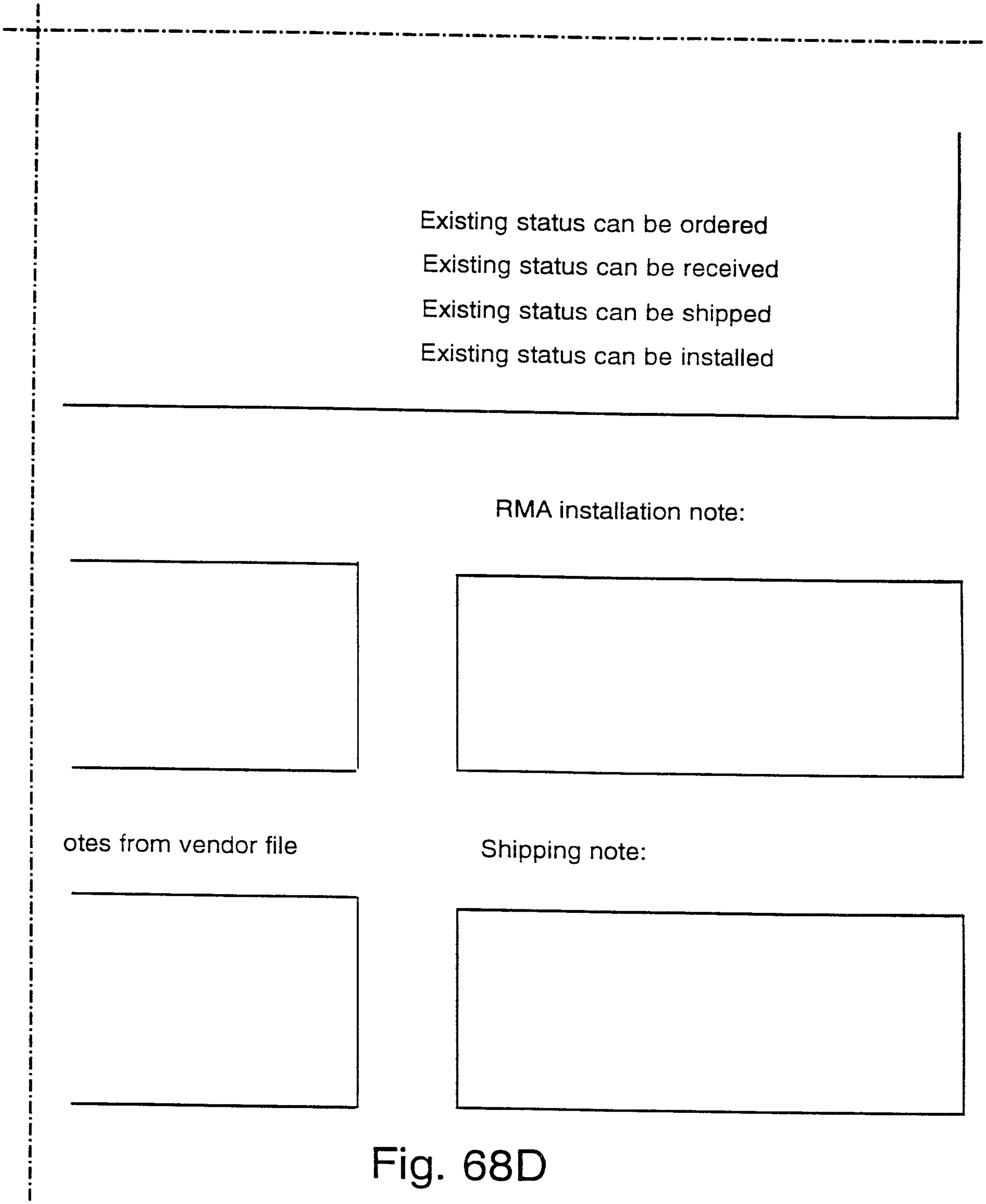
=All headings are sortable.

* All items are selectable and can be made into different groups.

*Replacement MWS = Red color

Unique installation note:
Unique shipping note:
Standard default notes from custmer file
Standard default shipping n

Fig. 68C



Existing status can be ordered

Existing status can be received

Existing status can be shipped

Existing status can be installed

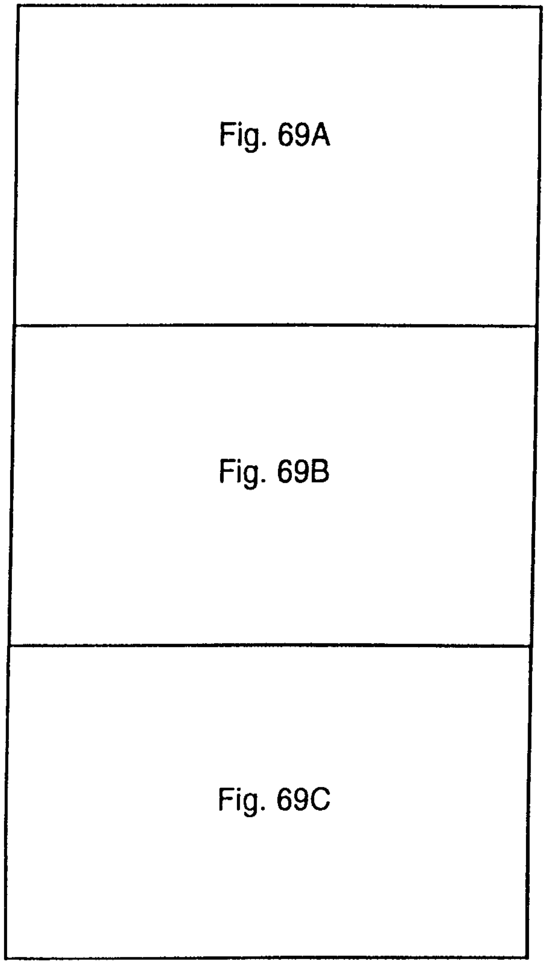
RMA installation note:

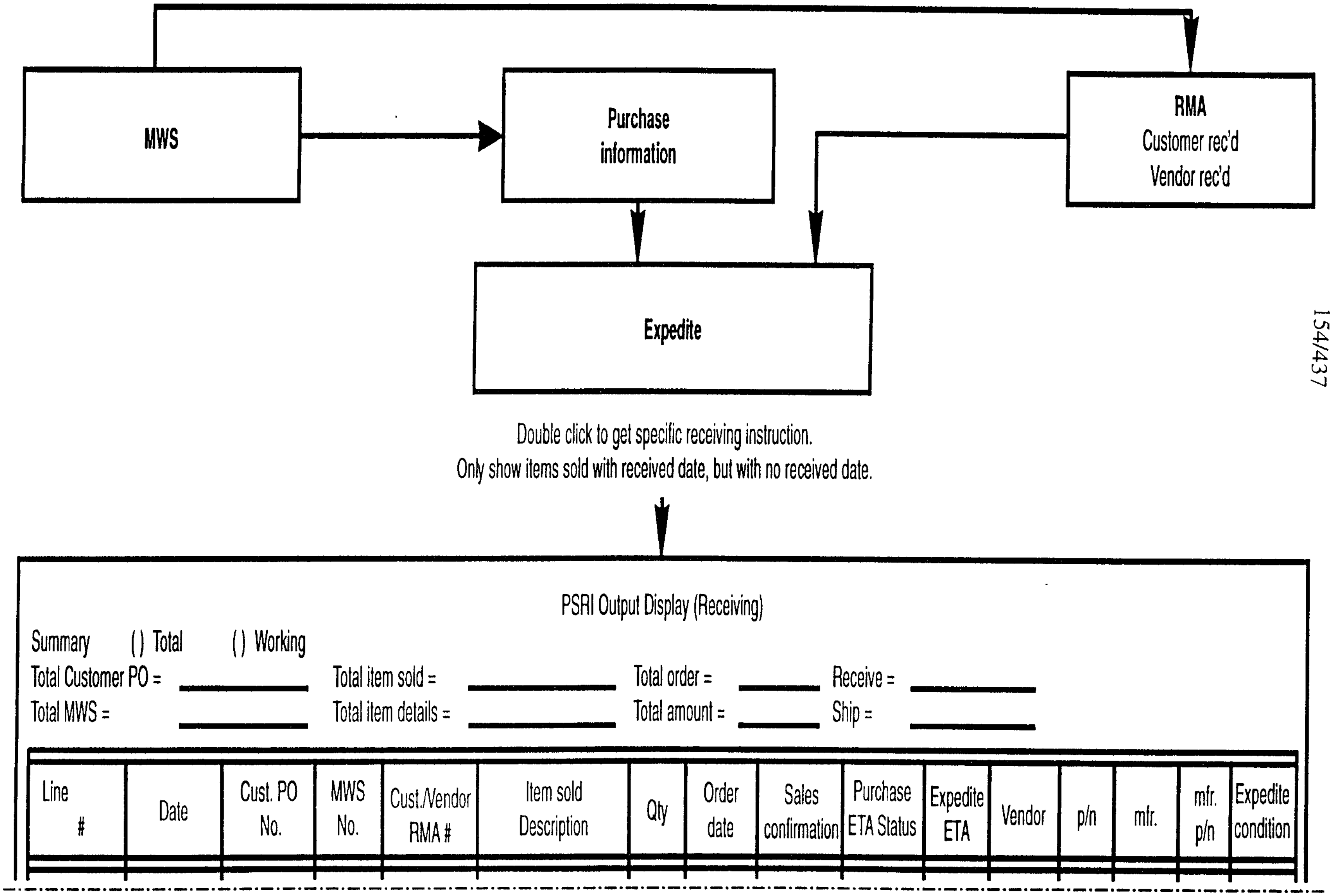
otes from vendor file

Shipping note:

Fig. 68D

Fig. 69





Double click to get specific receiving instruction.
Only show items sold with received date, but with no received date.

PSRI Output Display (Receiving)

Summary ( ) Total ( ) Working

Total Customer PO = ______ Total item sold = ______ Total order = ______ Receive = ______

Total MWS = ______ Total item details = ______ Total amount = ______ Ship = ______

Line #	Date	Cust. PO No.	MWS No.	Cust./Vendor RMA #	Item sold Description	Qty	Order date	Sales confirmation	Purchase ETA Status	Expedite ETA	Vendor	p/n	mfr.	mfr. p/n	Expedite condition

FIG.69A

1	10/11/97	1556-WX	28515		Compaq SCSI HD Critical	5	11/20/97	Credit card	Hold Note		Techdata	12345	Compaq		
2	10/11/97	1556-WX	28515		Compaq proliant Track	24	11/20/97		Refuse		Techdata	13554	Compaq		
3	10/11/97	1556-WX	28515		Compaq memory	10	11/19/97		stock		Merisel	13554	Compaq		
4	10/11/97	1444PA	28415		HP Vectra	3	11/20/97	COD	OK		Ingram Micro	13554	HP		
5	10/11/97	1444PA	28415		HP memory	4	11/21/97		OK		Microage	13554	HP		
6	10/11/97	1444PA	28415		HP Printer Drop Ship	200	11/12/97		OK Note		Computer land	13554	HP		

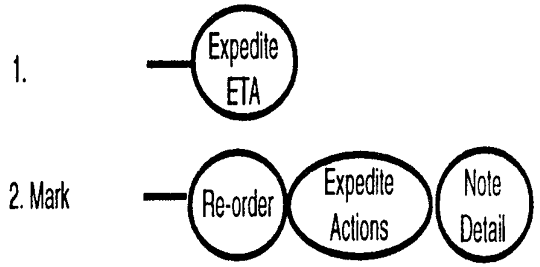
▭ = All headings are sortable.

* All items are selectable and expand (double click) into item deails.

* Replacement MWS = Red color

FIG.69B

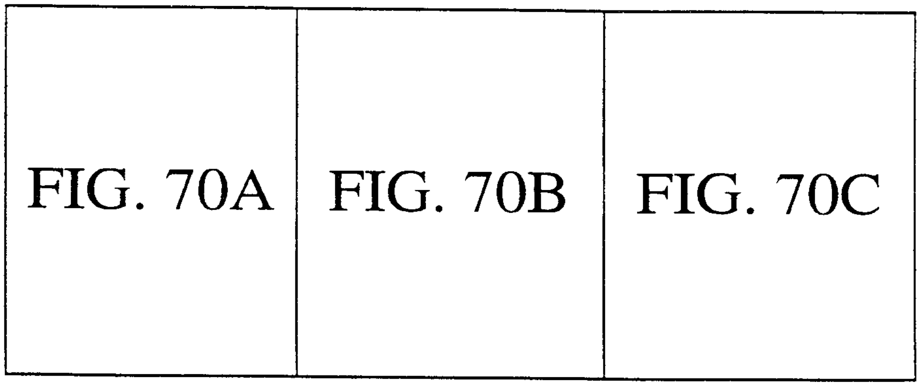
Actions:

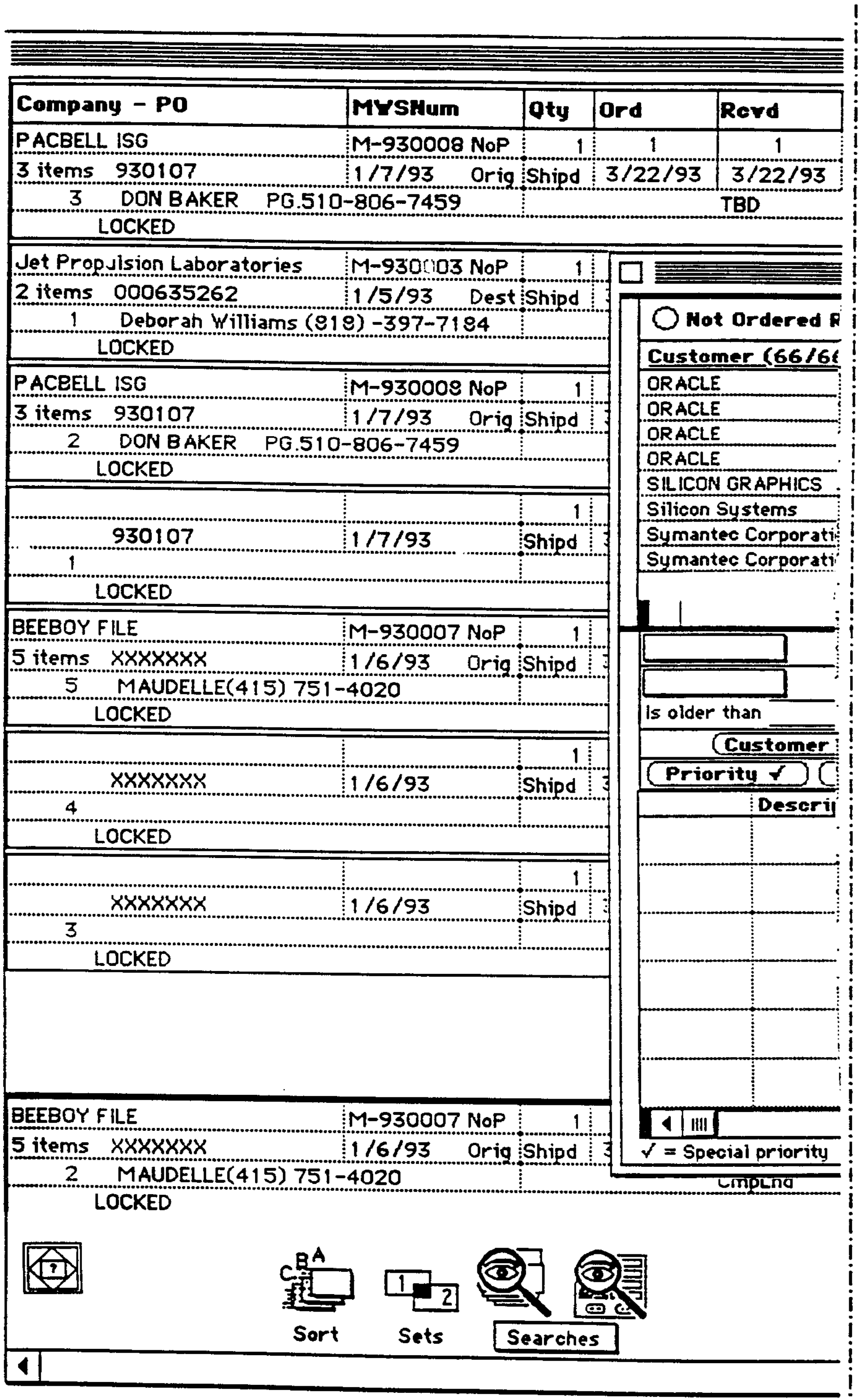


1. Expected to receive will exclude refusal items.
2. Expected to ship will exclude refusal items, hold items and items with COD/cash term.
3. Batch input for all packing slips and items. The system automatically match input with items that existing in the system to all items that received.

FIG.69C

FIG. 70





Company - PO	MYSNum	Qty	Ord	Rcvd
PACBELL ISG	M-930008 NoP	1	1	1
3 items 930107	1/7/93 Orig	Shipd	3/22/93	3/22/93
3 DON BAKER PG.510-806-7459				TBD
LOCKED				
Jet Propulsion Laboratories	M-930003 NoP	1		
2 items 000635262	1/5/93 Dest	Shipd		
1 Deborah Williams (818) -397-7184				
LOCKED				
PACBELL ISG	M-930008 NoP	1		
3 items 930107	1/7/93 Orig	Shipd		
2 DON BAKER PG.510-806-7459				
LOCKED				
		1		
930107	1/7/93	Shipd		
1				
LOCKED				
BEEBOY FILE	M-930007 NoP	1		
5 items XXXXXXX	1/6/93 Orig	Shipd		
5 MAUDELLE(415) 751-4020				
LOCKED				
		1		
XXXXXXX	1/6/93	Shipd		
4				
LOCKED				
		1		
XXXXXXX	1/6/93	Shipd		
3				
LOCKED				
BEEBOY FILE	M-930007 NoP	1		
5 items XXXXXXX	1/6/93 Orig	Shipd		
2 MAUDELLE(415) 751-4020				
LOCKED				

○ Not Ordered R

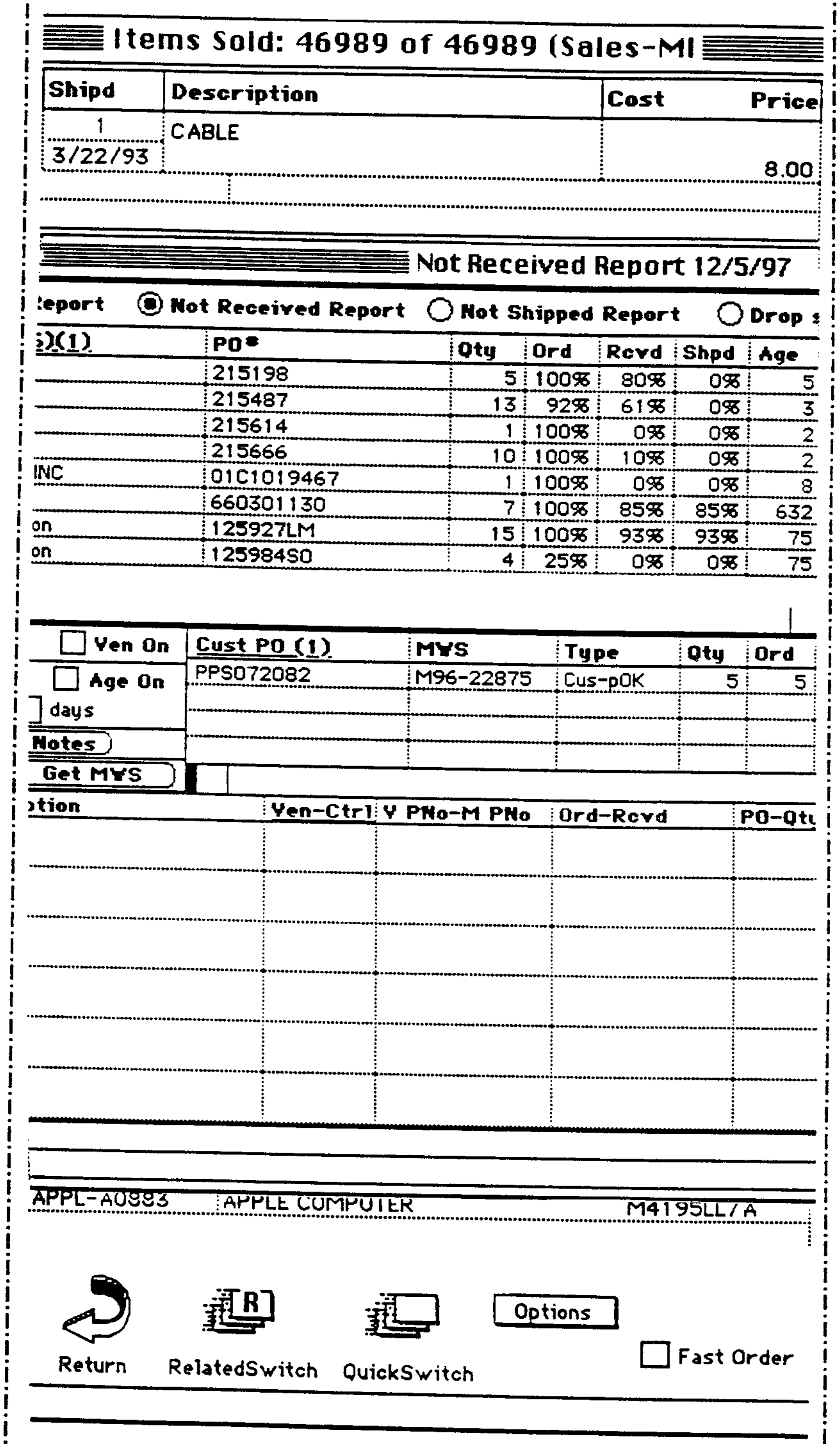
Customer (66/6

ORACLE
ORACLE
ORACLE
ORACLE
SILICON GRAPHICS
Silicon Systems
Symantec Corporati
Symantec Corporati

Is older than

✓ = Special priority

FIG. 70A



Items Sold: 46989 of 46989 (Sales-MI

Shipd	Description	Cost	Price
1 3/22/93	CABLE		8.00

Not Received Report 12/5/97

eport ● Not Received Report ○ Not Shipped Report ○ Drop

)(1)	PO#	Qty	Ord	Rcvd	Shpd	Age
	215198	5	100%	80%	0%	5
	215487	13	92%	61%	0%	3
	215614	1	100%	0%	0%	2
	215666	10	100%	10%	0%	2
INC	01C1019467	1	100%	0%	0%	8
	660301130	7	100%	85%	85%	632
on	125927LM	15	100%	93%	93%	75
on	125984SO	4	25%	0%	0%	75

☐ Ven On

☐ Age On

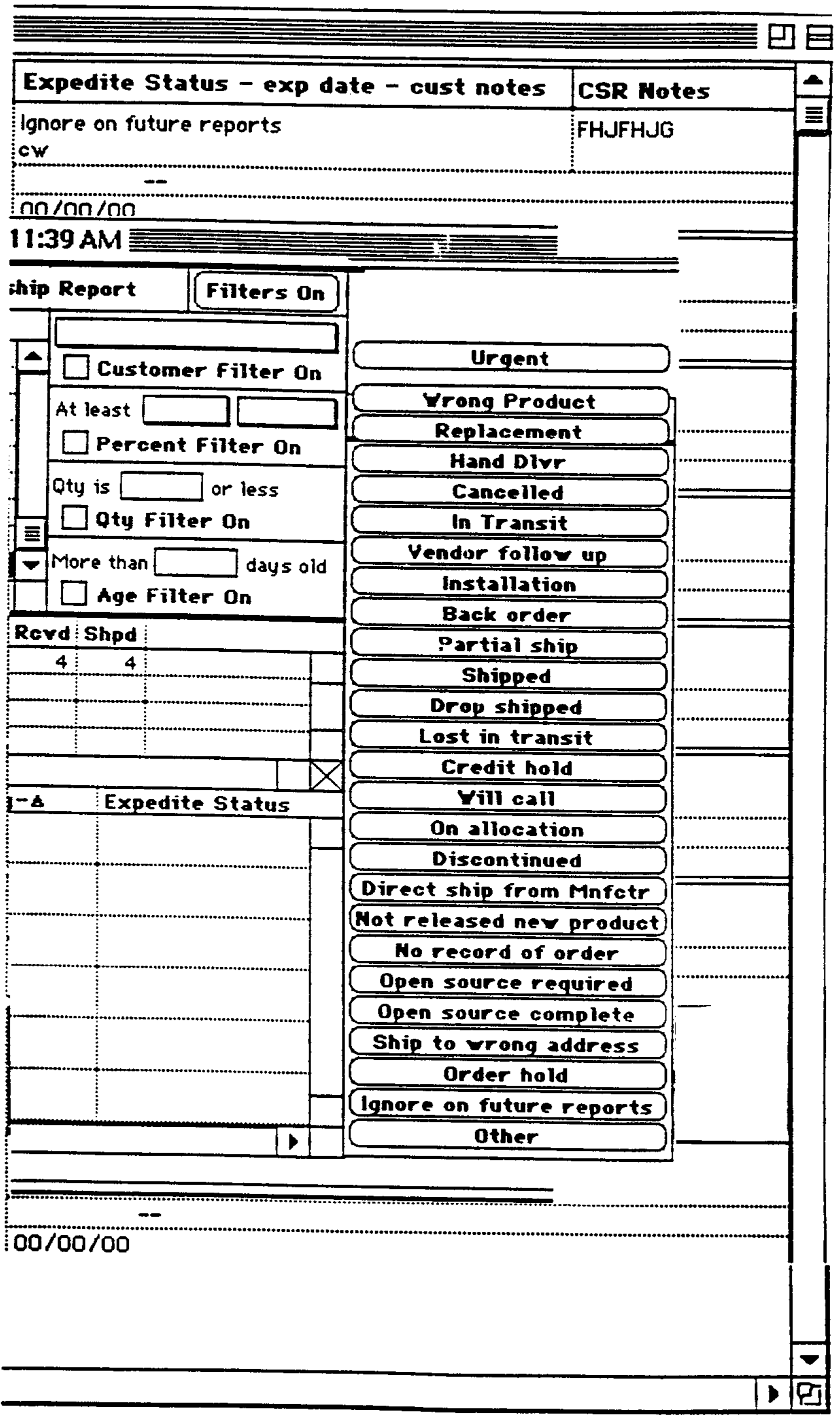
days

Cust PO (1)	MVS	Type	Qty	Ord
PPS072082	M96-22875	Cus-pOK	5	5

tion	Ven-Ctrl	V PNo-M PNo	Ord-Rcvd	PO-Qt

APPL-A0983 APPLE COMPUTER M4195LL/A

FIG. 70B



Expedite Status - exp date - cust notes	CSR Notes
Ignore on future reports cw	FHJFHJG

--

00/00/00

11:39 AM

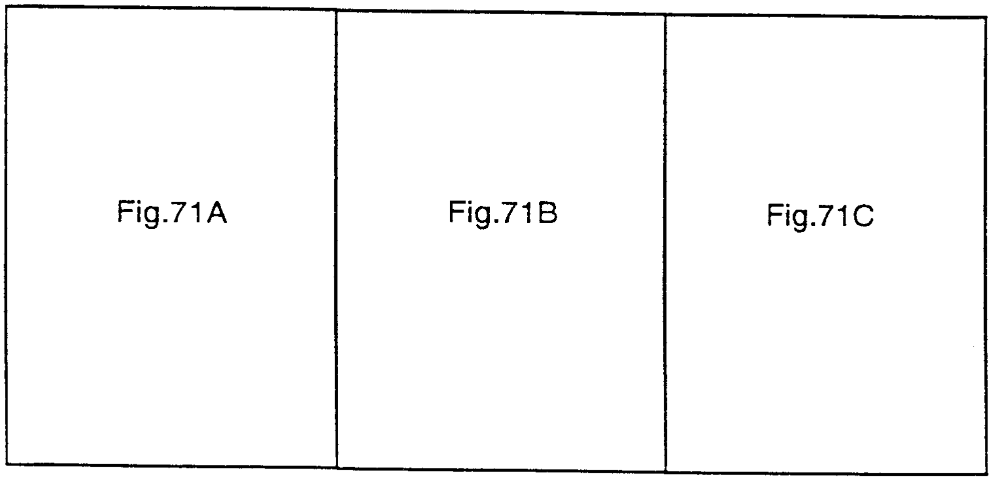
Rcvd	Shpd
4	4

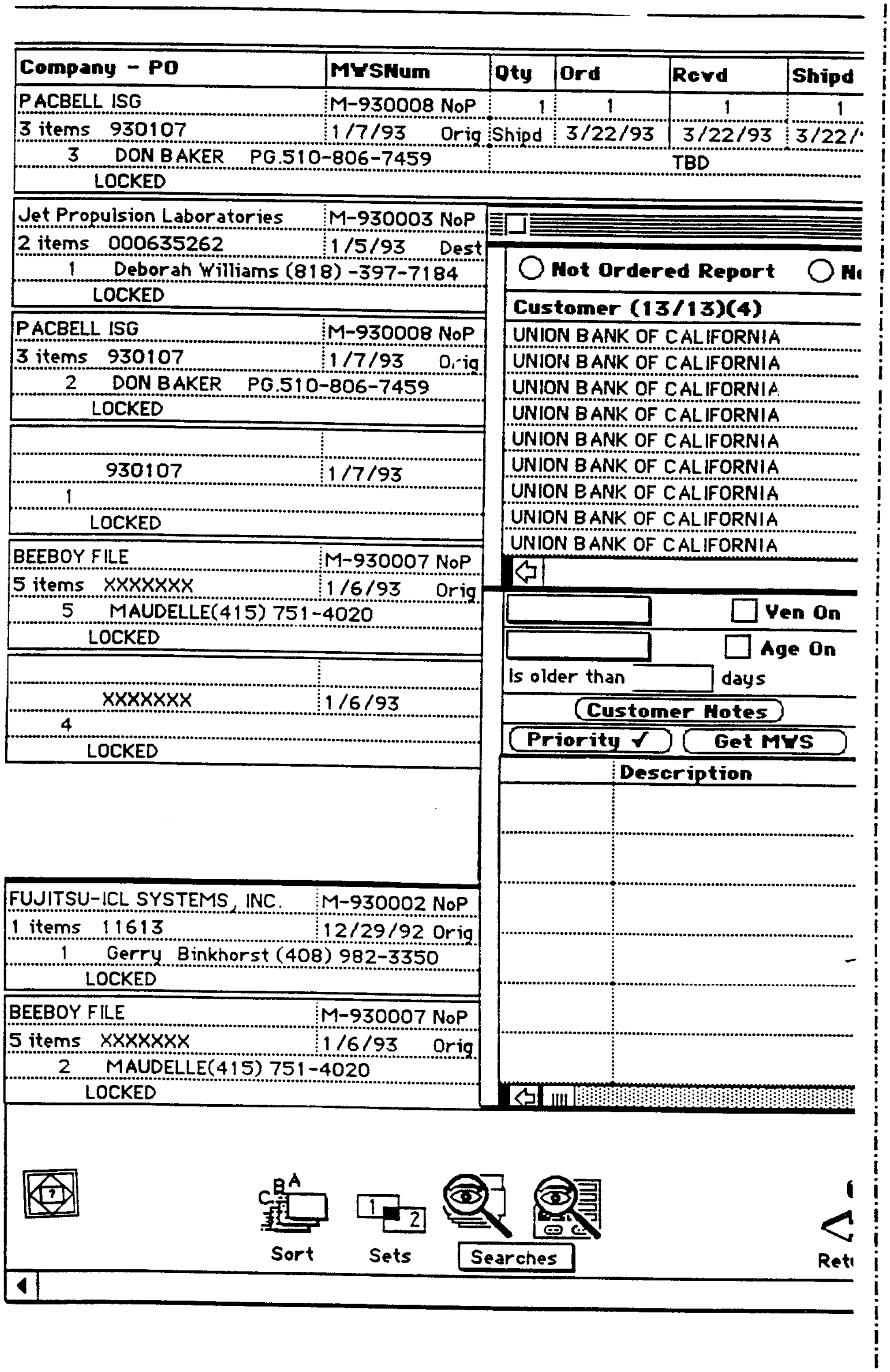
--

00/00/00

FIG. 70C

Fig. 71





Company - PO	MVSNum	Qty	Ord	Rcvd	Shipd
PACBELL ISG	M-930008 NoP	1	1	1	1
3 items 930107	1/7/93 Orig	Shipd	3/22/93	3/22/93	3/22/
3 DON BAKER PG.510-806-7459			TBD		
LOCKED					

Jet Propulsion Laboratories M-930003 NoP
2 items 000635262 1/5/93 Dest
1 Deborah Williams (818) -397-7184
LOCKED

PACBELL ISG M-930008 NoP
3 items 930107 1/7/93 Orig
2 DON BAKER PG.510-806-7459
LOCKED

930107 1/7/93
1
LOCKED

BEEBOY FILE M-930007 NoP
5 items XXXXXXX 1/6/93 Orig
5 MAUDELLE(415) 751-4020
LOCKED

XXXXXXX 1/6/93
4
LOCKED

FUJITSU-ICL SYSTEMS, INC. M-930002 NoP
1 items 11613 12/29/92 Orig
1 Gerry Binkhorst (408) 982-3350
LOCKED

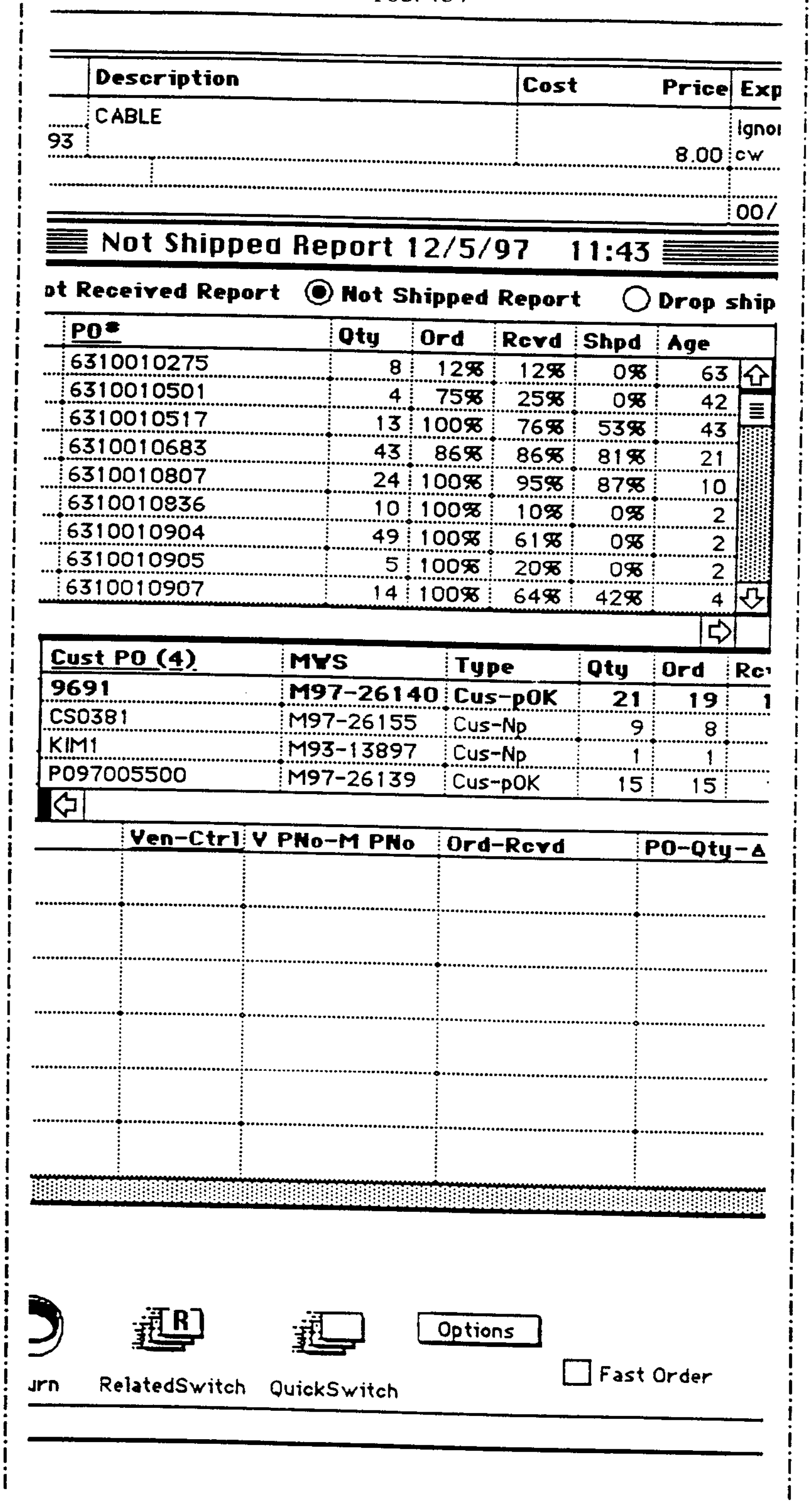
BEEBOY FILE M-930007 NoP
5 items XXXXXXX 1/6/93 Orig
2 MAUDELLE(415) 751-4020
LOCKED

○ Not Ordered Report ○ N

Customer (13/13)(4)
UNION BANK OF CALIFORNIA
UNION BANK OF CALIFORNIA
UNION BANK OF CALIFORNIA
UNION BANK OF CALIFORNIA
UNION BANK OF CALIFORNIA
UNION BANK OF CALIFORNIA
UNION BANK OF CALIFORNIA
UNION BANK OF CALIFORNIA
UNION BANK OF CALIFORNIA

☐ Ven On
☐ Age On
Is older than days

FIG. 71A



	Description	Cost	Price	Exp
93	CABLE		8.00	Ignoi cw
				00/

Not Shipped Report 12/5/97 11:43

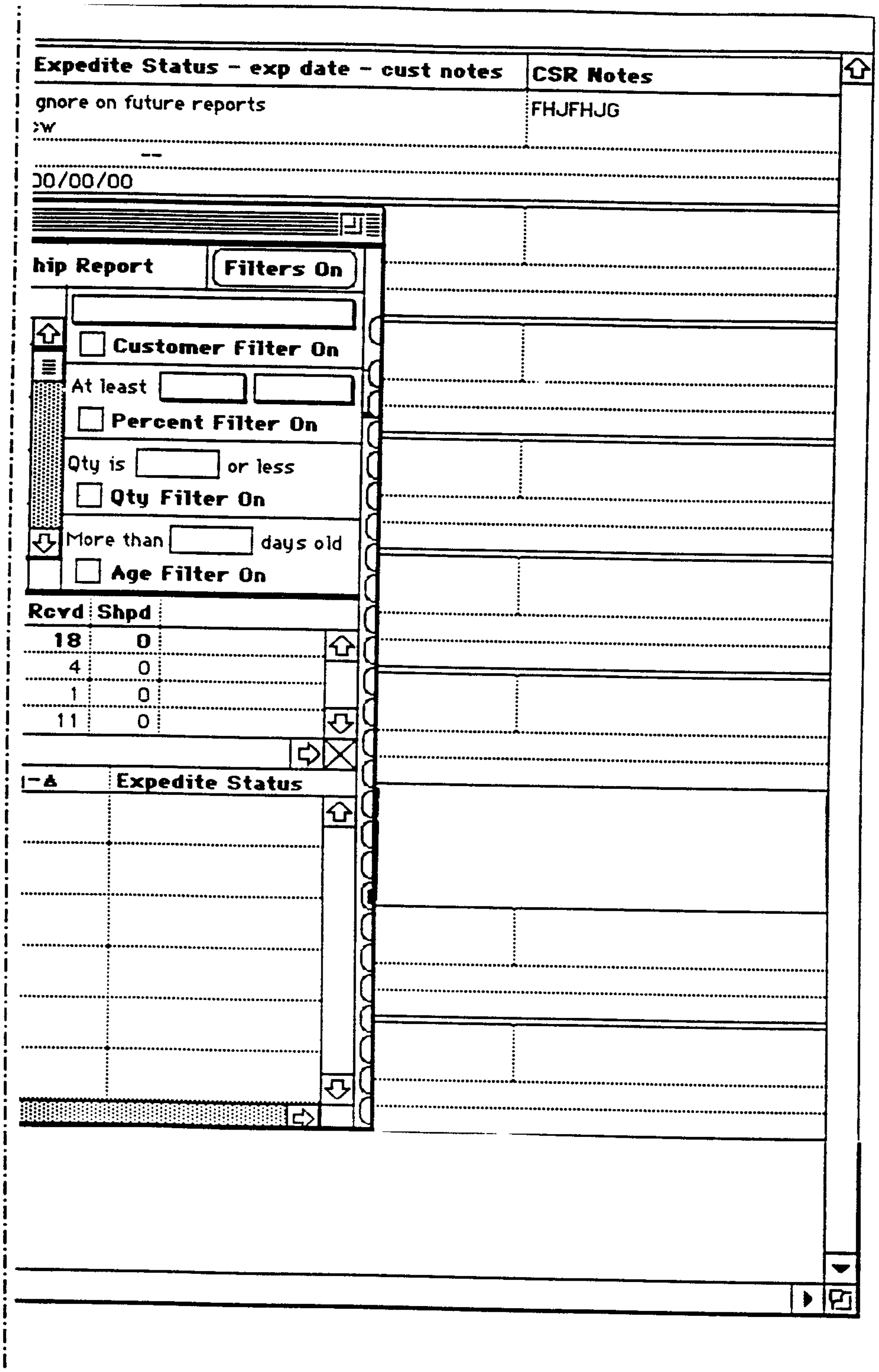
ot Received Report ● Not Shipped Report ○ Drop ship

PO#	Qty	Ord	Rcvd	Shpd	Age
6310010275	8	12%	12%	0%	63
6310010501	4	75%	25%	0%	42
6310010517	13	100%	76%	53%	43
6310010683	43	86%	86%	81%	21
6310010807	24	100%	95%	87%	10
6310010836	10	100%	10%	0%	2
6310010904	49	100%	61%	0%	2
6310010905	5	100%	20%	0%	2
6310010907	14	100%	64%	42%	4

Cust PO (4)	MVS	Type	Qty	Ord	Rc
9691	**M97-26140**	**Cus-pOK**	**21**	**19**	**1**
CS0381	M97-26155	Cus-Np	9	8	
KIM1	M93-13897	Cus-Np	1	1	
P097005500	M97-26139	Cus-pOK	15	15	

	Ven-Ctrl	V PNo-M PNo	Ord-Rcvd	PO-Qty-Δ

FIG. 71B



Expedite Status – exp date – cust notes	CSR Notes
gnore on future reports :w -- 0/00/00	FHJFHJG

hip Report

Filters On

☐ Customer Filter On

At least

☐ Percent Filter On

Qty is or less

☐ Qty Filter On

More than days old

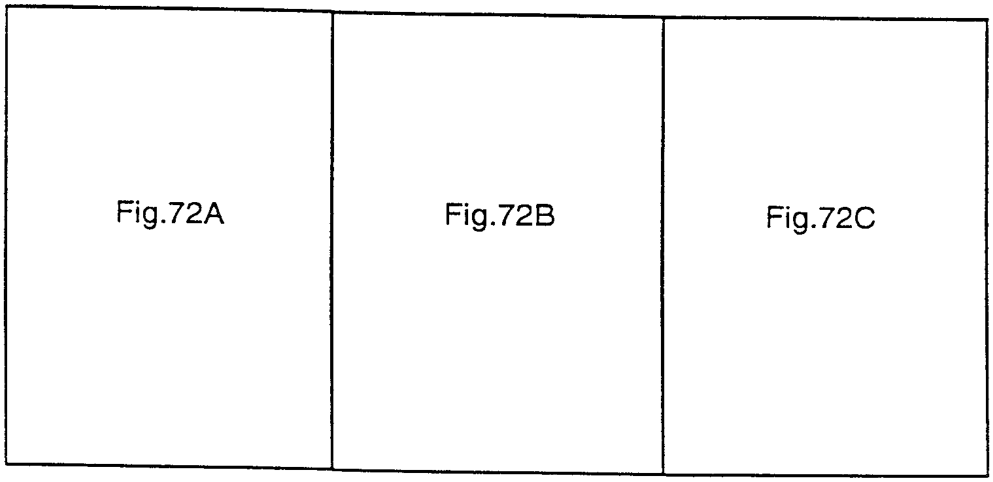
☐ Age Filter On

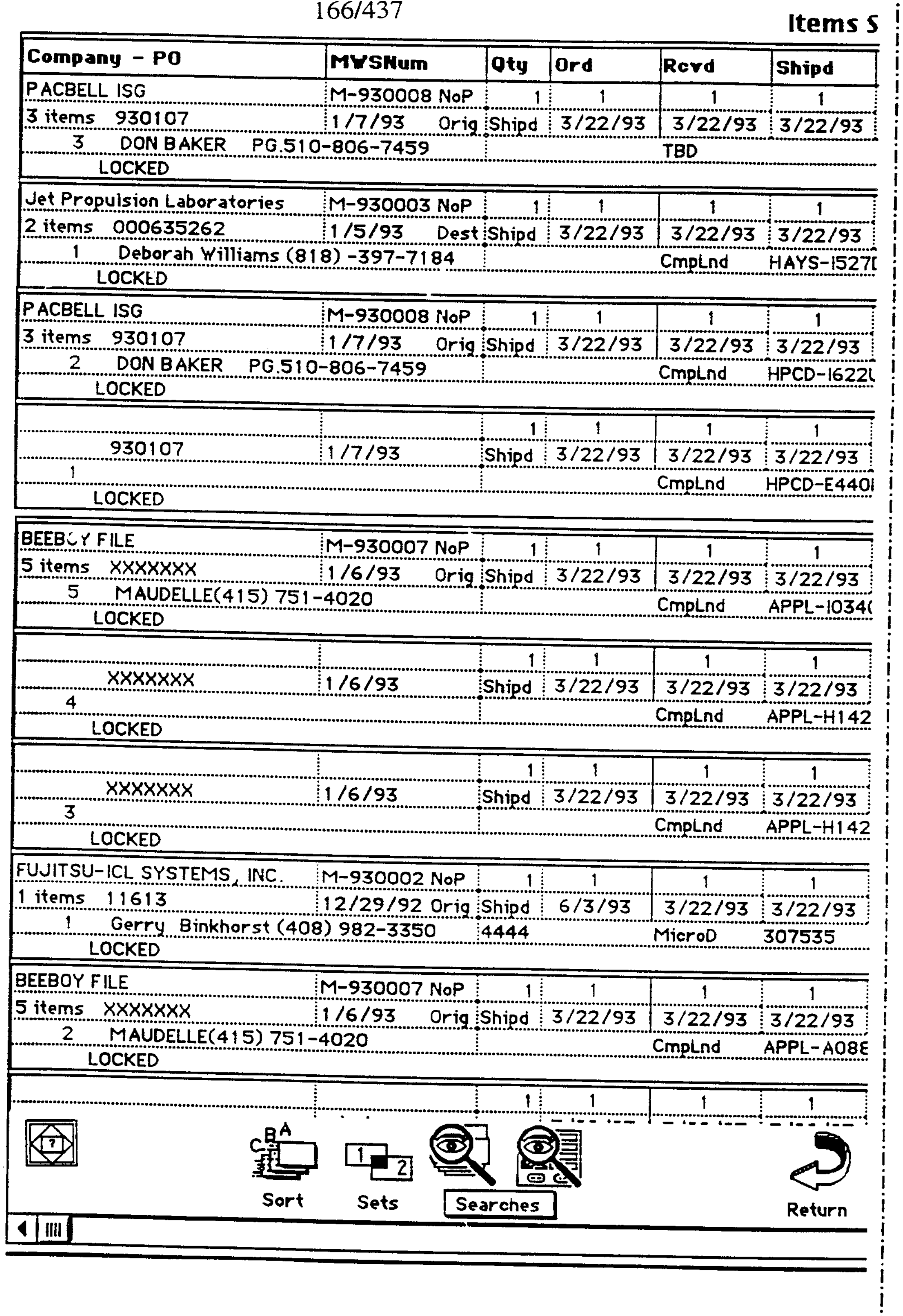
Rcvd	Shpd
18	0
4	0
1	0
11	0

I–A	Expedite Status

FIG. 71C

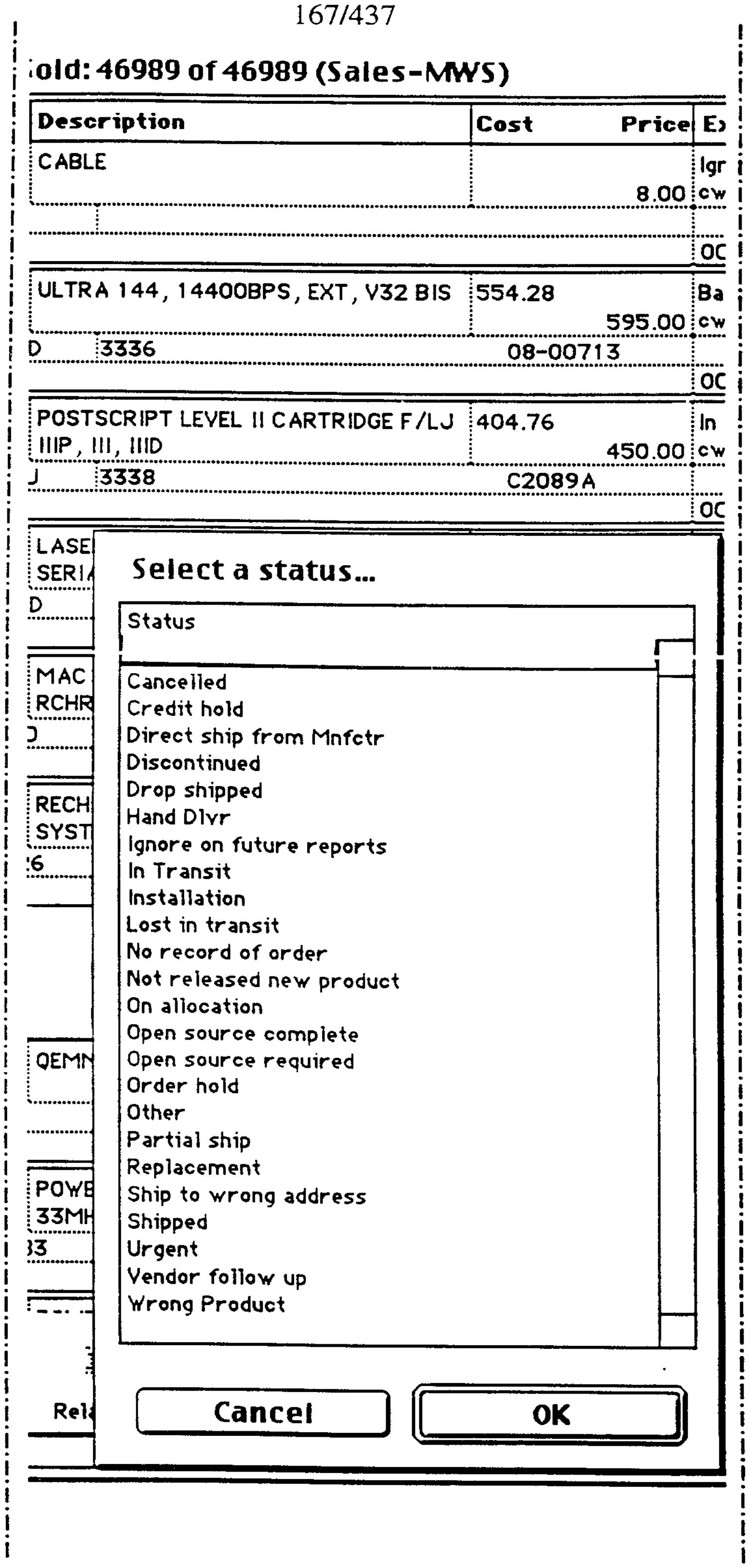
Fig. 72





Company - PO	MVSNum	Qty	Ord	Rcvd	Shipd
PACBELL ISG	M-930008 NoP	1	1	1	1
3 items 930107	1/7/93 Orig	Shipd	3/22/93	3/22/93	3/22/93
3 DON BAKER PG.510-806-7459				TBD	
LOCKED					
Jet Propulsion Laboratories	M-930003 NoP	1	1	1	1
2 items 000635262	1/5/93 Dest	Shipd	3/22/93	3/22/93	3/22/93
1 Deborah Williams (818) -397-7184				CmpLnd	HAYS-1527
LOCKED					
PACBELL ISG	M-930008 NoP	1	1	1	1
3 items 930107	1/7/93 Orig	Shipd	3/22/93	3/22/93	3/22/93
2 DON BAKER PG.510-806-7459				CmpLnd	HPCD-1622
LOCKED					
		1	1	1	1
930107	1/7/93	Shipd	3/22/93	3/22/93	3/22/93
1				CmpLnd	HPCD-E440
LOCKED					
BEEBOY FILE	M-930007 NoP	1	1	1	1
5 items XXXXXXX	1/6/93 Orig	Shipd	3/22/93	3/22/93	3/22/93
5 MAUDELLE(415) 751-4020				CmpLnd	APPL-1034
LOCKED					
		1	1	1	1
XXXXXXX	1/6/93	Shipd	3/22/93	3/22/93	3/22/93
4				CmpLnd	APPL-H142
LOCKED					
		1	1	1	1
XXXXXXX	1/6/93	Shipd	3/22/93	3/22/93	3/22/93
3				CmpLnd	APPL-H142
LOCKED					
FUJITSU-ICL SYSTEMS, INC.	M-930002 NoP	1	1	1	1
1 items 11613	12/29/92 Orig	Shipd	6/3/93	3/22/93	3/22/93
1 Gerry Binkhorst (408) 982-3350		4444		MicroD	307535
LOCKED					
BEEBOY FILE	M-930007 NoP	1	1	1	1
5 items XXXXXXX	1/6/93 Orig	Shipd	3/22/93	3/22/93	3/22/93
2 MAUDELLE(415) 751-4020				CmpLnd	APPL-A08
LOCKED					
		1	1	1	1

FIG. 72A



old: 46989 of 46989 (Sales-MWS)

Description	Cost	Price	E›
CABLE		8.00	lgr cw
			OC
ULTRA 144, 14400BPS, EXT, V32 BIS	554.28	595.00	Ba cw
D 3336	08-00713		
			OC
POSTSCRIPT LEVEL II CARTRIDGE F/LJ IIIP, III, IIID	404.76	450.00	In cw
J 3338	C2089A		
			OC
LASE SERI/			
D			
MAC RCHR			
RECH SYST			
QEMN			
POWE 33MH			

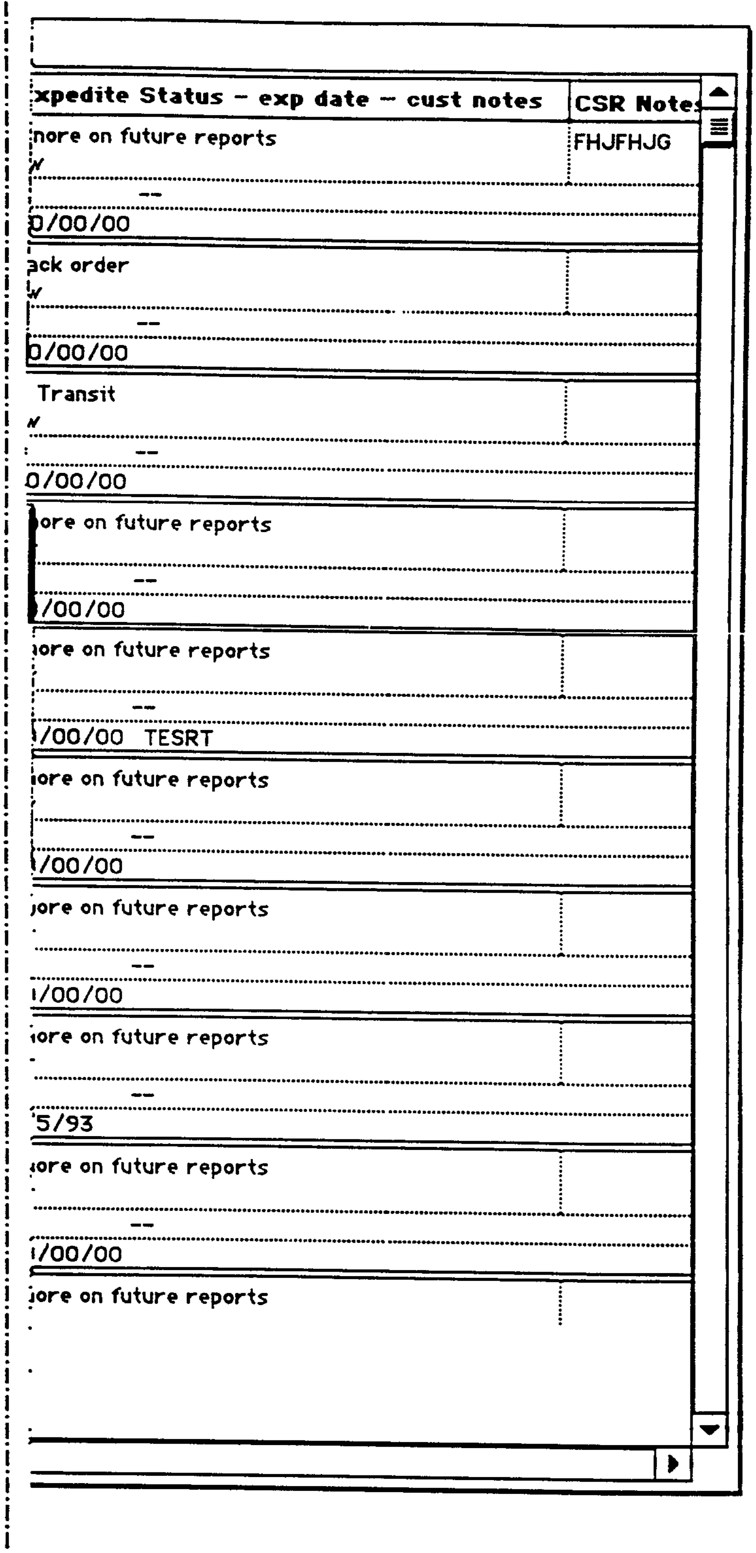
Rel

Select a status...

Status

Cancelled
Credit hold
Direct ship from Mnfctr
Discontinued
Drop shipped
Hand Dlvr
Ignore on future reports
In Transit
Installation
Lost in transit
No record of order
Not released new product
On allocation
Open source complete
Open source required
Order hold
Other
Partial ship
Replacement
Ship to wrong address
Shipped
Urgent
Vendor follow up
Wrong Product

FIG. 72B



xpedite Status – exp date – cust notes | CSR Note

nore on future reports
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0/00/00

ack order
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Transit
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5/93

ore on future reports
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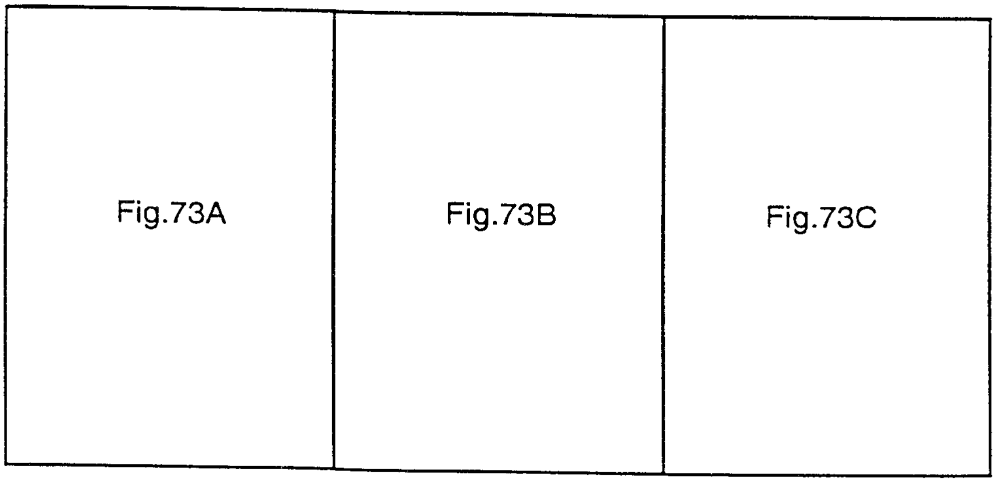
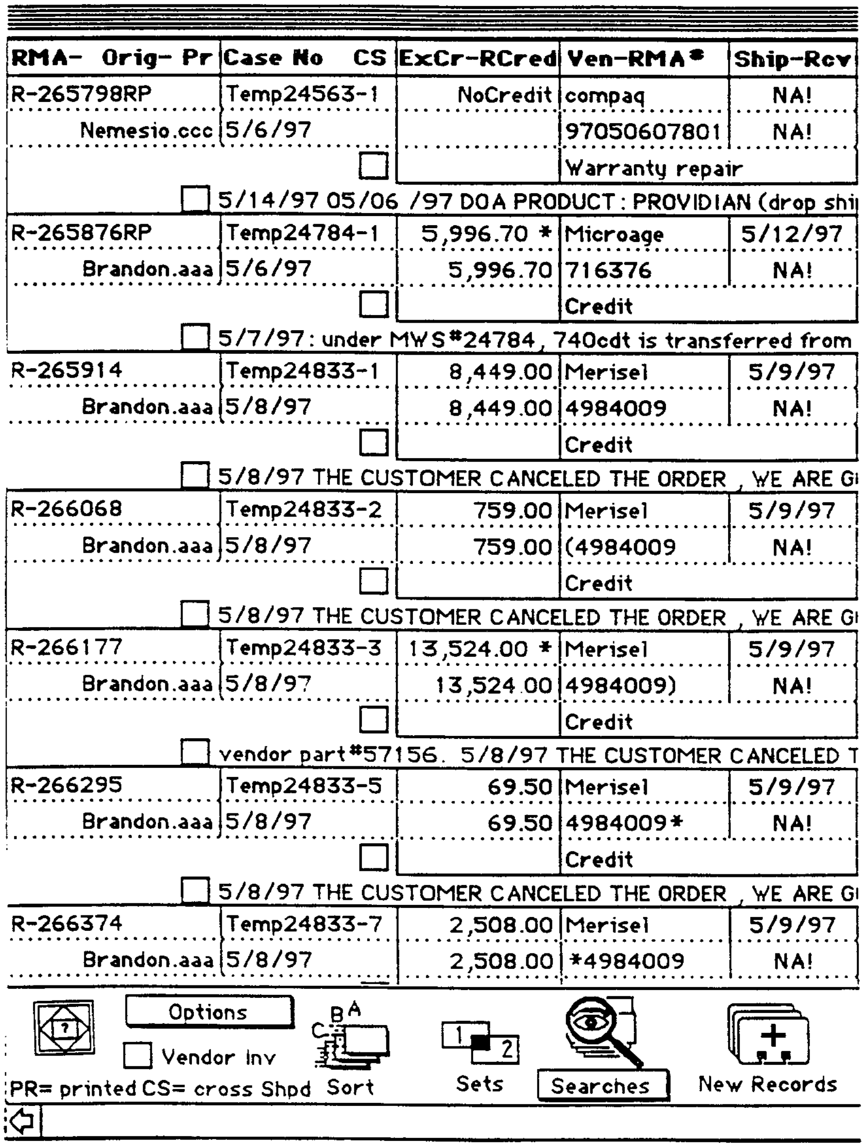
ore on future reports

FIG. 72C

Fig. 73

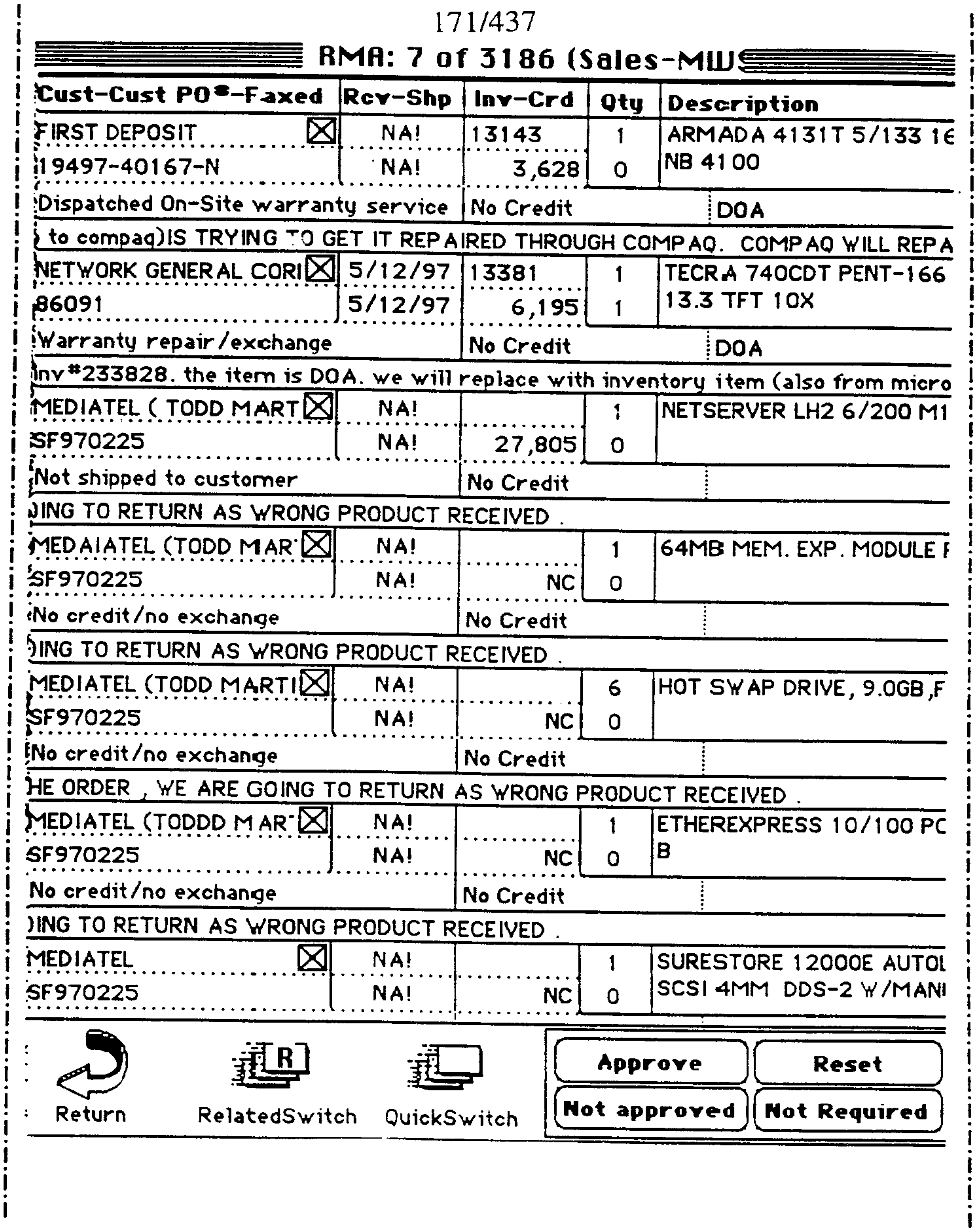




RMA- Orig- Pr	Case No CS	ExCr-RCred	Ven-RMA*	Ship-Rcv
R-265798RP	Temp24563-1	NoCredit	compaq	NA!
Nemesio.ccc	5/6/97		97050607801	NA!
	☐		Warranty repair	
☐ 5/14/97 05/06 /97 DOA PRODUCT : PROVIDIAN (drop shi				
R-265876RP	Temp24784-1	5,996.70 *	Microage	5/12/97
Brandon.aaa	5/6/97	5,996.70	716376	NA!
	☐		Credit	
☐ 5/7/97 : under MWS*24784, 740cdt is transferred from				
R-265914	Temp24833-1	8,449.00	Merisel	5/9/97
Brandon.aaa	5/8/97	8,449.00	4984009	NA!
	☐		Credit	
☐ 5/8/97 THE CUSTOMER CANCELED THE ORDER , WE ARE G				
R-266068	Temp24833-2	759.00	Merisel	5/9/97
Brandon.aaa	5/8/97	759.00	(4984009	NA!
	☐		Credit	
☐ 5/8/97 THE CUSTOMER CANCELED THE ORDER , WE ARE G				
R-266177	Temp24833-3	13,524.00 *	Merisel	5/9/97
Brandon.aaa	5/8/97	13,524.00	4984009)	NA!
	☐		Credit	
☐ vendor part*57156. 5/8/97 THE CUSTOMER CANCELED T				
R-266295	Temp24833-5	69.50	Merisel	5/9/97
Brandon.aaa	5/8/97	69.50	4984009*	NA!
	☐		Credit	
☐ 5/8/97 THE CUSTOMER CANCELED THE ORDER , WE ARE G				
R-266374	Temp24833-7	2,508.00	Merisel	5/9/97
Brandon.aaa	5/8/97	2,508.00	*4984009	NA!

PR= printed CS= cross Shpd

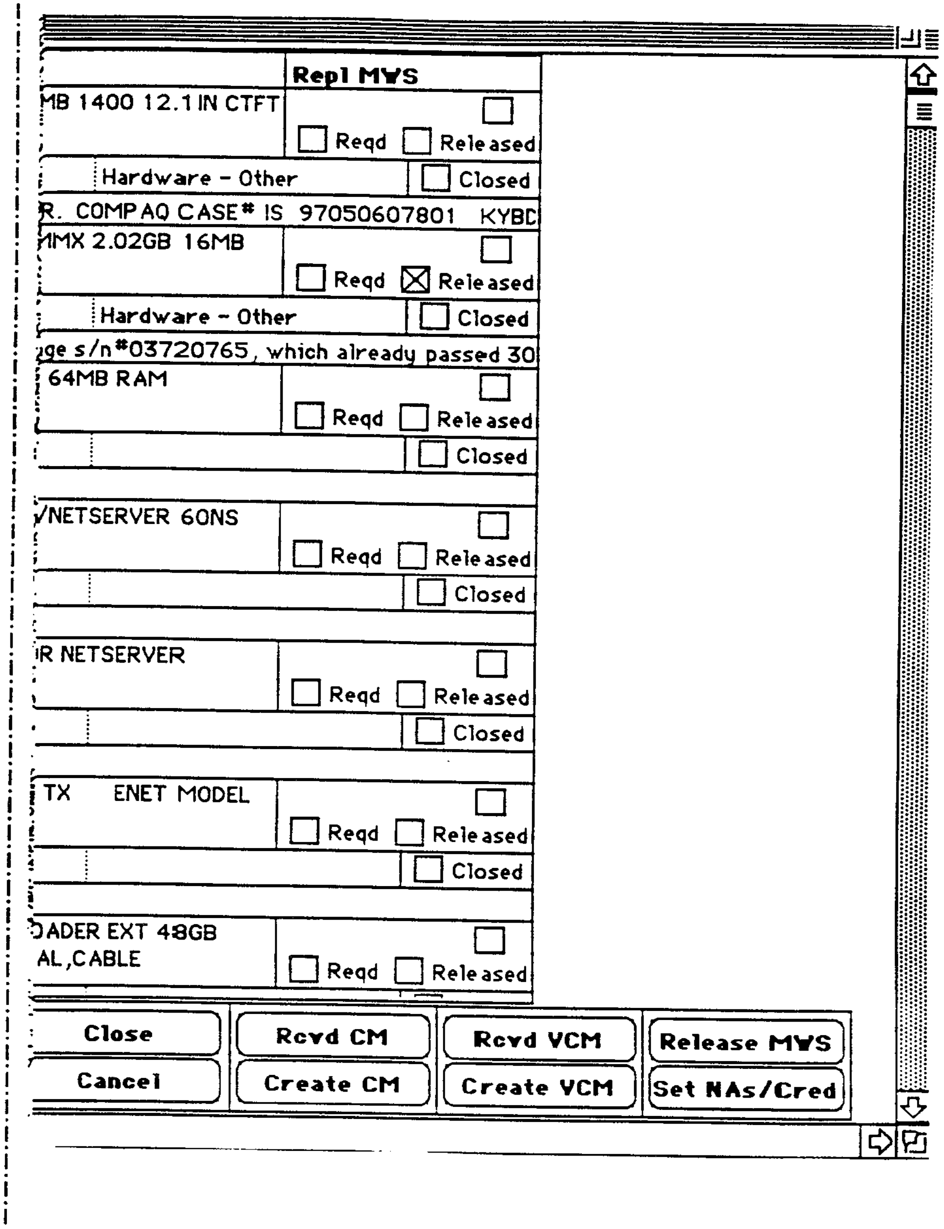
FIG. 73A



RMA: 7 of 3186 (Sales-MW

Cust-Cust PO#-Faxed	Rcv-Shp	Inv-Crd	Qty	Description
FIRST DEPOSIT ☒	NA!	13143	1	ARMADA 4131T 5/133 16
19497-40167-N	NA!	3,628	0	NB 4100
Dispatched On-Site warranty service		No Credit		DOA
to compaq)IS TRYING TO GET IT REPAIRED THROUGH COMPAQ. COMPAQ WILL REPA				
NETWORK GENERAL CORI ☒	5/12/97	13381	1	TECRA 740CDT PENT-166
86091	5/12/97	6,195	1	13.3 TFT 10X
Warranty repair/exchange		No Credit		DOA
Inv#233828. the item is DOA. we will replace with inventory item (also from micro				
MEDIATEL (TODD MART ☒	NA!		1	NETSERVER LH2 6/200 M1
SF970225	NA!	27,805	0	
Not shipped to customer		No Credit		
ING TO RETURN AS WRONG PRODUCT RECEIVED .				
MEDAIATEL (TODD MAR ☒	NA!		1	64MB MEM. EXP. MODULE F
SF970225	NA!	NC	0	
No credit/no exchange		No Credit		
ING TO RETURN AS WRONG PRODUCT RECEIVED .				
MEDIATEL (TODD MARTI ☒	NA!		6	HOT SWAP DRIVE, 9.0GB,F
SF970225	NA!	NC	0	
No credit/no exchange		No Credit		
HE ORDER , WE ARE GOING TO RETURN AS WRONG PRODUCT RECEIVED .				
MEDIATEL (TODDD MAR ☒	NA!		1	ETHEREXPRESS 10/100 PC
SF970225	NA!	NC	0	B
No credit/no exchange		No Credit		
ING TO RETURN AS WRONG PRODUCT RECEIVED .				
MEDIATEL ☒	NA!		1	SURESTORE 12000E AUTOL
SF970225	NA!	NC	0	SCSI 4MM DDS-2 W/MANI

FIG. 73B



Repl MWS

MB 1400 12.1 IN CTFT ☐ ☐ Reqd ☐ Released

Hardware - Other ☐ Closed

R. COMPAQ CASE# IS 97050607801 KYBC

MMX 2.02GB 16MB ☐ ☐ Reqd ☒ Released

Hardware - Other ☐ Closed

ge s/n#03720765, which already passed 30

64MB RAM ☐ ☐ Reqd ☐ Released

☐ Closed

/NETSERVER 6ONS ☐ ☐ Reqd ☐ Released

☐ Closed

R NETSERVER ☐ ☐ Reqd ☐ Released

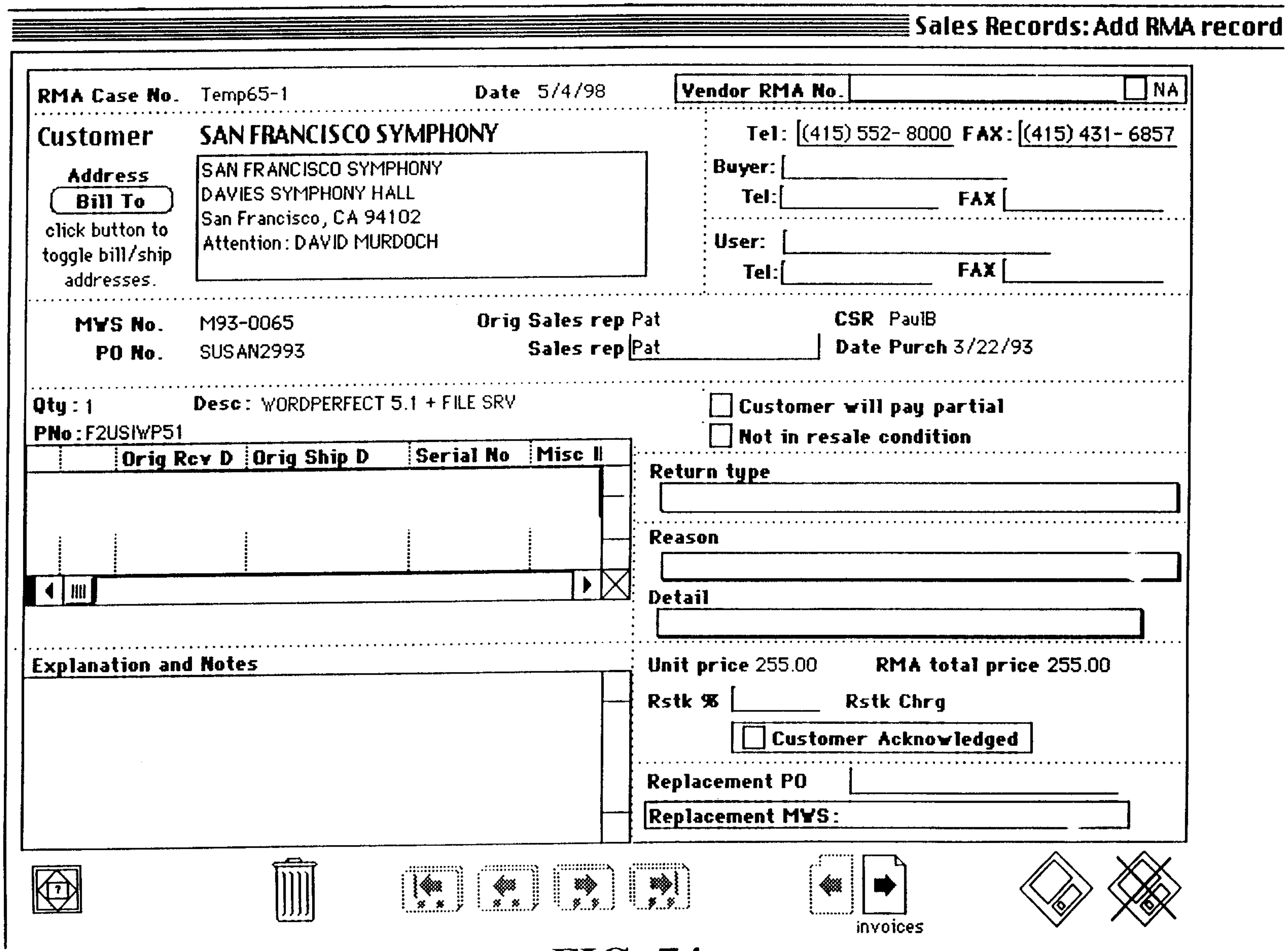
☐ Closed

TX ENET MODEL ☐ ☐ Reqd ☐ Released

☐ Closed

DADER EXT 48GB
AL,CABLE ☐ ☐ Reqd ☐ Released

FIG. 73C



Sales Records: Add RMA record

RMA Case No. Temp65-1
Date 5/4/98
Vendor RMA No. ☐ NA

Customer SAN FRANCISCO SYMPHONY
Tel: (415) 552- 8000 FAX: (415) 431- 6857

Address
SAN FRANCISCO SYMPHONY
DAVIES SYMPHONY HALL
San Francisco, CA 94102
Attention: DAVID MURDOCH

Buyer:
Tel:
FAX
User:
Tel:
FAX

MVS No. M93-0065
PO No. SUSAN2993
Orig Sales rep Pat
Sales rep Pat
CSR PaulB
Date Purch 3/22/93

Qty: 1
Desc: WORDPERFECT 5.1 + FILE SRV
PNo: F2USIWP51

		Orig Rcv D	Orig Ship D	Serial No	Misc II

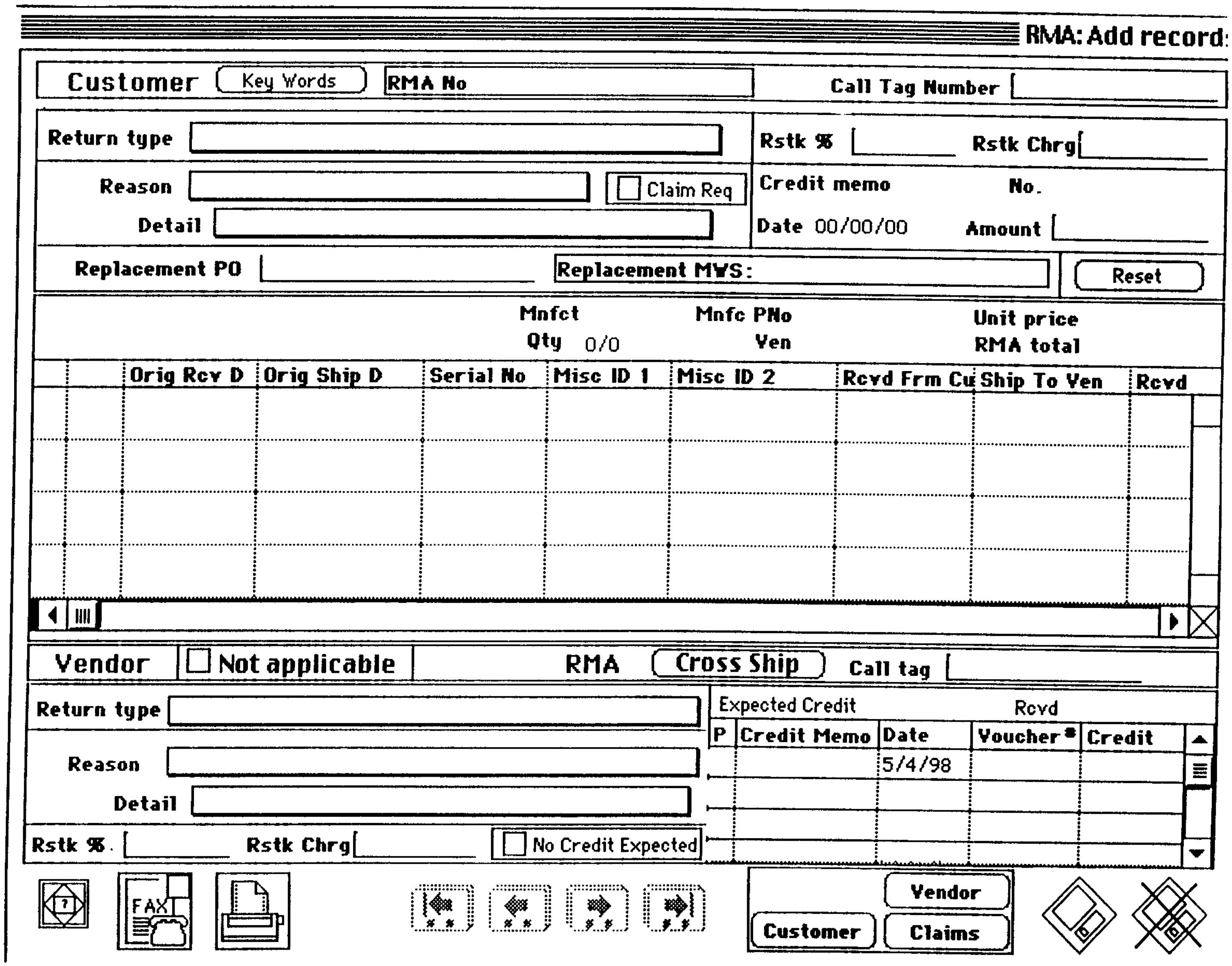
☐ Customer will pay partial
☐ Not in resale condition

Return type
Reason
Detail

Explanation and Notes

Unit price 255.00
RMA total price 255.00
Rstk %
Rstk Chrg
☐ Customer Acknowledged
Replacement PO
Replacement MVS:

FIG. 74



Date 00/00/00

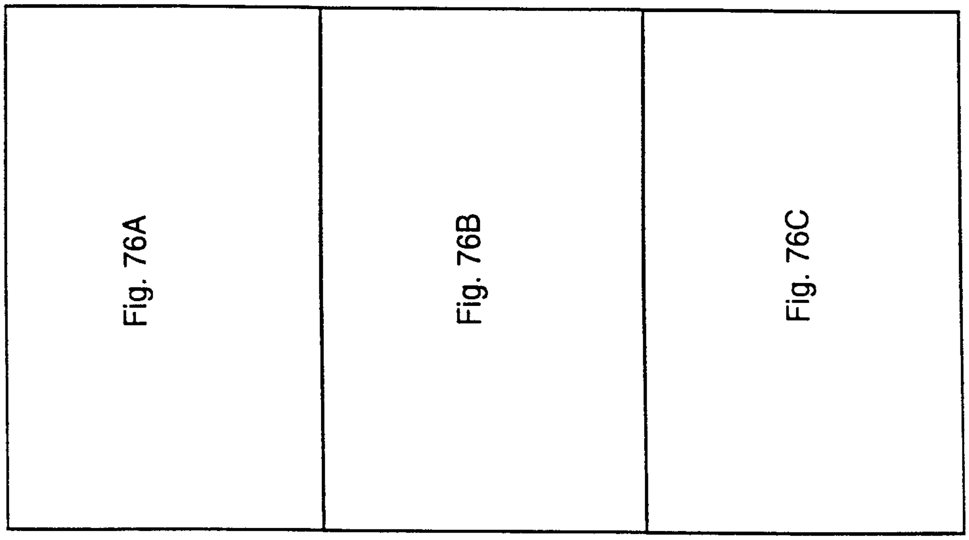
Qty 0/0

	Orig Rcv D	Orig Ship D	Serial No	Misc ID 1	Misc ID 2	Rcvd Frm Cu	Ship To Ven	Rcvd

P	Credit Memo	Date	Voucher #	Credit
		5/4/98		

FIG. 75

Fig. 76



V = Vendor whom we bought from or mfr of product.
C = Customer

Spectrum of N/A

1. If received, ship, claim & credit = NA, then return type must be equal to Not Applicable.

Return type/Action (C & V)	Active	Repair/ replace part # Y/N	Service On-site Y/N	$ On-site Charge	$ Additional repair Charge	Mfr. or vendor		RMA#	Rec'd V	Ship V	Credit V	Claim V	Cust.Orig. ship date req'd	Fax return Form (PR)	E-mail notification	Show web	Repl MWS	
						Drop Ship	Cross Ship											
1. Credit Check	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A		N/A	N/A		N/A N/A	N/A Y	Y Y	Y Y	Y Y	N	V C
Credit card	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A		N/A	N/A		N/A N/A	N/A Y	Y Y	Y Y	Y Y	N	V C
Credit memo	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A		N/A	N/A		N/A N/A	N/A Y	Y Y	Y Y	Y Y	N	V C
2. Exchange Mirror C & V	Y	N/A	N/A	N/A	N/A	Y/N	Y/N		N/A	N/A		N/A N/A	N/A Y	Y	Y	Y	Y	V C
3.Repair/replace (on/off site)																		

FIG.76A

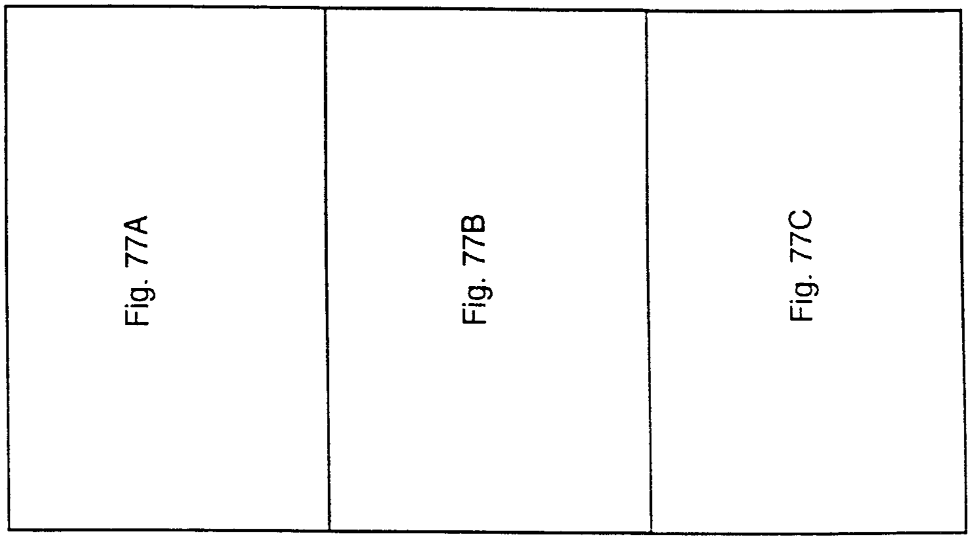
Mirror C & V	Under warranty part/exchange required	Y Y	Y/N Y/N	Y/N Y/N	Y/N Y/N	N/A N/A	Y/N Y/N	Y/N Y/N				N/A	N/A N/A	N/A Y	Y Y	Y Y	Y Y	N	V C
	Under warranty part not req'd	Y Y	Y/N Y/N	Y/N Y/N	Y/N Y/N	N/A N/A	N/A N/A	N/A N/A	N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A Y	N/A N/A	Y Y	Y Y	N	V C
	Out of warranty part required	Y Y	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N	N/A	N/A	N/A	N/A N/A	N/A N/A	N/A Y	Y Y	Y Y	Y Y	Y	V C
	Out of warranty part not req'd	Y Y	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N	N/A N/A	N/A N/A	N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A Y	N/A N/A	Y Y	Y Y	Y	V C
4. Ship	wrong address	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	Y/N Y/N	N/A N/A		N/A	N/A	N/A N/A	N/A N/A	N/A Y	Y Y	N/A N/A	N/A N/A	N	V C
	Refused	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A		N/A	N/A		N/A N/A	N/A Y	N/A N/A	N/A N/A	N/A N/A	N	V C
	Lost	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	Y/N Y/N	Y/N Y/N	N/A N/A	N/A N/A	N/A N/A	N/A		N/A Y	N/A N/A	N/A N/A	N/A N/A	Y	V C
	Ship damaged	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	Y/N Y/N	Y/N Y/N						N/A Y	Y Y	Y Y	N/A N/A	Y	V C

FIG.76B

	missing components	Y Y	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N	N/A	N/A N/A	N/A	N/A N/A	N/A N/A	N/A Y	N/A N/A	N/A N/A	N/A N/A	Y	V C
	Duplicate ship	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	Y/N Y/N	N/A N/A		N/A	N/A		N/A N/A	N/A Y	Y Y	Y Y	N/A N/A	N	V C
	Inventory	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A		N/A N/A	N/A	N/A	N/A N/A	N/A N	N/A N/A	N/A N/A	N/A N/A	N	V C
5. Never ship, stay in ware-house	Cancel order/shipment	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A		N/A N/A	N/A		N/A N/A	N/A N	N/A N/A	N/A N/A	N/A N/A	N	V C
	Transferred order	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N	N/A N/A	N/A N/A	N/A N/A	N	V C
	Never ship to customer	Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A		N/A N/A	N/A	N/A	N/A N/A	N/A N	N/A N/A	N/A N/A	N/A N/A	N	V C
6. Not applicable		Y Y	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N	N/A N/A	N/A N/A	N/A N/A	N	V C
7. Other		Y Y	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N	Y/N Y/N						N/A N/A	Y Y	Y Y	Y Y		V C

FIG.76C

Fig. 77



Limit File (Customer or Vendor)

Auotmatic Approval Intelligence

Return type/Action (C & V)		Allow auto Approval	Groups								
			Mfr.			Vendor		Customer			
			Mfr. Allow Return	Mfr. allow Open Box	Exceed Mfr. allow max Time Duration	Exceed Vendor allow max.time Duration	Vendor Restock Fee	Exceed Customer Allow time duration	Charge Restock fee	exceed Sprice limit	Charge Service fee
1. Credit	Check	Y	Y	Y	N	N	N/A	N	N	N	N/A
	Credit card	Y	Y	N	Y	N	N/A	N	N	N	N/A
	Credit memo	N	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2. Exchange Mirror C & V		Y Y	Y	N N	N N	N N	N/A N/A	N	N Y	N N	N/A N/A

FIG.77A

3.Repair/replace (on/off site)											
Mirror C & V	Under warranty part/exchange required	Y	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A	N
	Under warranty part not req'd	Y	N/A	N/A	N	N/A	N/A	N/A	N/A N/A	N/A	Y
	Out of warranty part required	Y	N/A	N/A	N	N/A	N/A	N/A	N/A N/A	N/A	Y
	Out of warranty part not req'd	Y	N/A	N/A	N	N/A	N/A	N/A	N/A N/A	N/A	Y
4. Ship	wrong address	Y	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A
	Refused	Y	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A
	Lost	Y	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A

FIG.77B

	Ship damaged	Y	N/A	N/A	N	N	N/A	N	N/A	N/A	N/A
	missing components	Y	N/A	N/A	N	N/A	N/A	N	N/A	N/A	N/A
	Duplicate ship	Y	N/A	N/A	Y	N/A N	N/A	N/A	Y	N/A	N/A
	Inventory	Y	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A
5. **Never ship, stay in ware-house**	Cancel order/shipment	Y	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A
	Transferred order	Y	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A
	Never ship to customer	Y	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A
6. Not applicable		Y	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A
7. Other											

FIG.77C

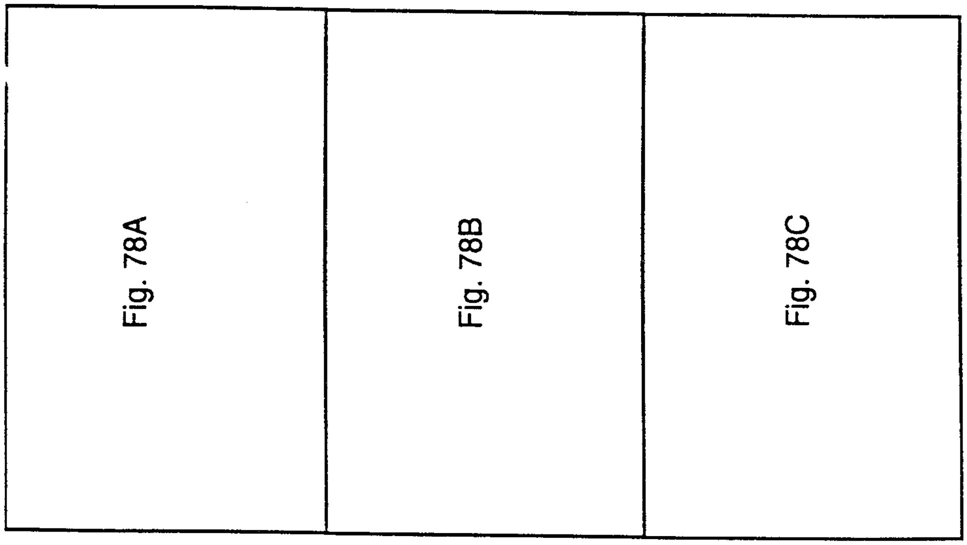


Fig. 78

Customer File Auto RMA Approval

Automatic Approval Criteria

Return type/Action (C & V)		Preset time allow between Orig. ship date & RMA request date	Restock Fee	Max allow time = Vendor max time	S price max	Service fee for On-site	Excced $ return limit	Excced agreed return period
1. Credit	Check	Range	Range	N/A	Range	Range/Y/N	Amount	Days
	Credit card	Range	Range	N/A	Range	Range/Y/N	Amount	Days
	Credit memo	Range	Range	N/A	Range	Range/Y/N	Amount	Days
2. Exchange Mirror C & V		Range	Range	N/A	Range	Range/Y/N	Amount	Days
3.Repair/replace (on/off site)		Range	Range	N/A	N/A	Range/Y/N	Amount	Days
Mirror C & V	Under warranty part/exchange	N/A	N/A	N/A	N/A	Range/Y/N	N/A	N/A

FIG.78A

	required							
	Under warranty part not req'd	N/A	N/A	N/A	N/A	Range/Y/N	N/A	N/A
	Out of warranty part required	N/A	N/A	N/A	N/A	Range/Y/N	N/A	N/A
	Out of warranty part not req'd	N/A	N/A	N/A	N/A	Range/Y/N	N/A	N/A
4. Ship	wrong address	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Refused	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Lost	Range	N/A	N/A	N/A	N/A	N/A	N/A
	Ship damaged	Range	N/A	N/A	N/A	N/A	N/A	N/A
	missing components	Range	N/A	N/A	N/A	N/A	N/A	N/A
	Duplicate	Range	N/A	N/A	N/A	N/A	N/A	N/A

FIG.78B

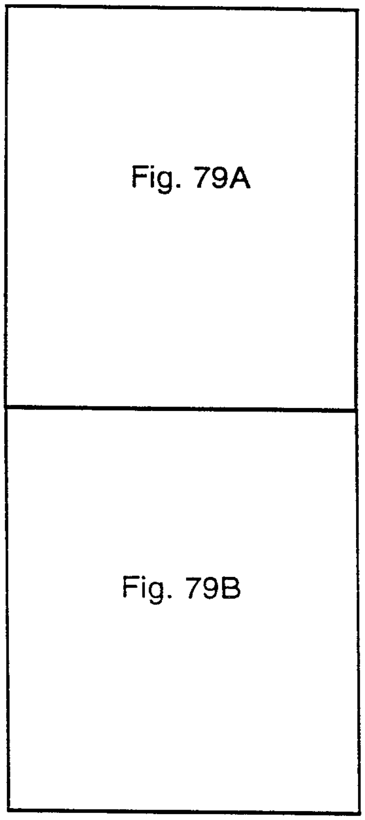
	ship							
	Inventory	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5. Never ship, stay in ware-house	Cancel order/shipment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Transferred order	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Never ship to customer	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6. Not applicable		N/A	N/A	N/A	N/A	N/A	N/A	N/A
7. Other								

New rules:

1. Return type must be create in duplicate (pair) for Vendor & Customer (V & C).
2. Allow changes only of return detail on either V or C. One return detail must remain unchanged (creation keys).
3. Return type can be different for vendor & customer on the same RMA.
4. Option to block use of any return type.
5. Original ship date as guide for proper selection of return type.
6. Create default setup initially.

FIG.78C

Fig. 79



Vendor File Auto RMA Approval

Automatic Approval Criteria

Return type/Action (C & V)		Return allowed	Allowable Max date vendor time	Restock Fee
1. Credit	Check	Y/N	Limit	Range
	Credit card	Y/N	Limit	Range
	Credit memo	Y/N	Limit	Range
2. Exchange Mirror C & V		Y/N	Limit	Range
3.Repair/replace (on/off site)		Y/N	N/A	N/A
Mirror C & V	Under warranty part/exchange required	Y/N	N/A	N/A
	Under warranty part not req'd	Y/N	N/A	N/A
	Out of warranty part required	Y/N	N/A	N/A
	Out of warranty part not req'd	Y/N	N/A	N/A
4. Ship	wrong address	Y/N	Limit	Range
	Refused	Y/N	Limit	Range
	Lost	Y/N	N/A	N/A
	Ship damaged	Y/N	Limit	Limit

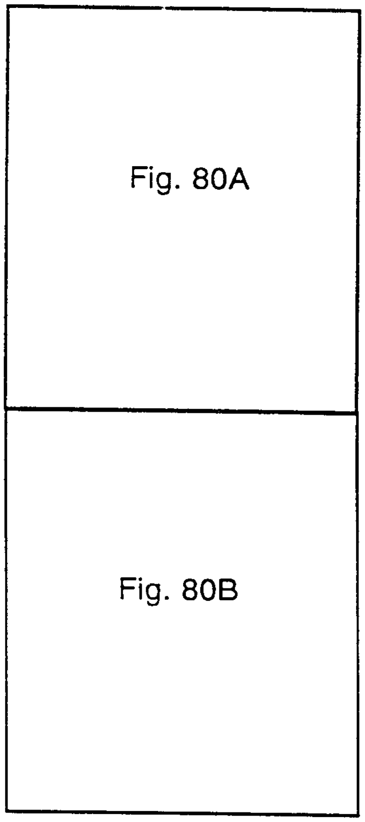
FIG.79A

	missing components	Y/N	N/A	N/A
	Duplicate ship	Y/N	N/A	N/A
	Inventory	Y/N	N/A	N/A
5. **Never ship, stay in warehouse**	Cancel order/shipment	Y/N	N/A	N/A
	Transferred order	Y/N	N/A	N/A
	Never ship to customer	Y/N	Limit	Limit
6. Not applicable		Y/N	N/A	N/A
7. Other				

New rules:
1. Return type must be create in duplicate (pair) for Vendor & Customer (V & C).
2. Allow changes only of return detail on either V or C. One return detail must remain unchanged (crea
3. Return type can be different for vendor & customer on the same RMA.
4. Option to block use of any return type.
5. Original ship date as guide for proper selection of return type.
6. Create default setup initially.

FIG.79B

Fig. 80



Mfr. File Auto RMA Approval

Automatic Approval Criteria

Return type/Action (C & V)		Return allowed	Open return allowed	Max time to return	Max time to Warranty service on-site	Max time to Warranty service off-site
1. Credit	Check	Y	Y/N	Limit	N/A	N/A
	Credit card	Y	Y/N	Limit	N/A	N/A
	Credit memo	Y	Y/N	Limit	N/A	N/A
2. Exchange Mirror C & V		Y	Y/N	Limit	N/A	N/A
3.Repair/replace (on/off site)		Y		Limit	N/A	N/A
Mirror C & V	Under warranty part/exchange required	Y	N/A	N/A	Limit	Limit
	Under warranty part not req'd	Y	N/A	N/A	Limit	Limit
	Out of warranty part required	Y	N/A	N/A	N/A	N/A
	Out of warranty part not req'd	Y	N/A	N/A	N/A	N/A
4. Ship	wrong address	Y	N/A	Limit	N/A	N/A
	Refused	Y	N/A	Limit	N/A	N/A
	Lost	Y	N/A	Limit	N/A	N/A
	Ship damaged	Y	N/A	Limit	N/A	N/A

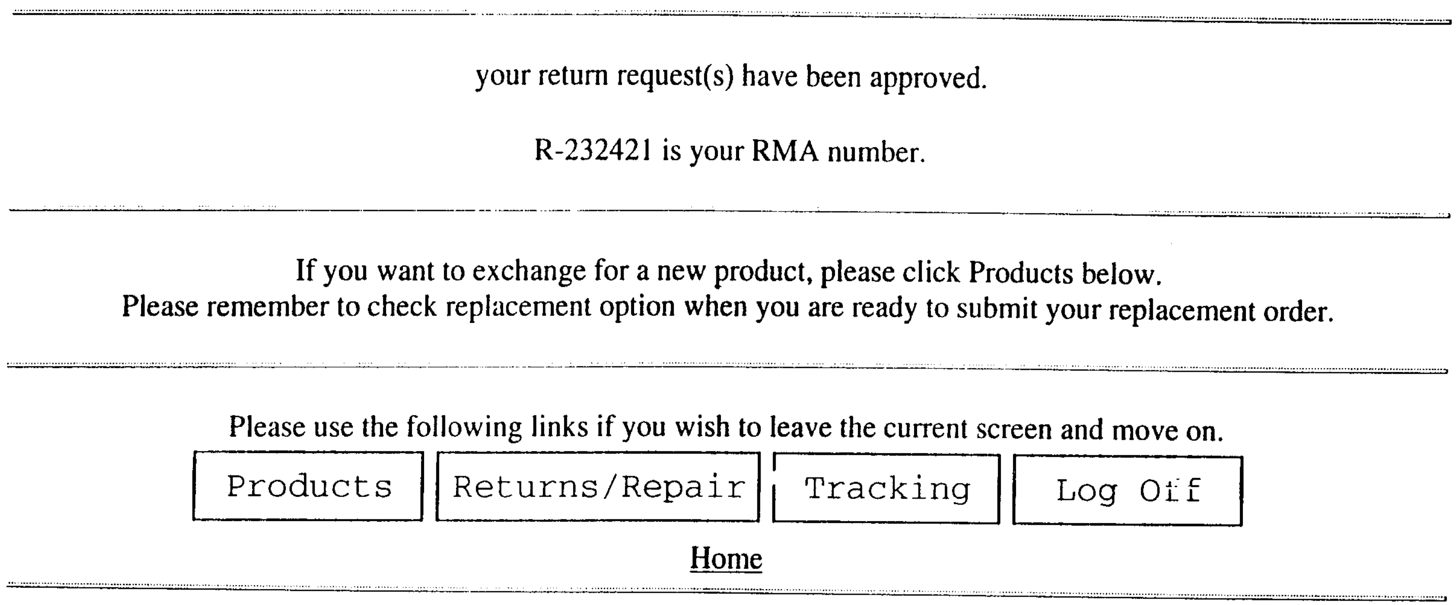
FIG.80A

	missing components	Y	N/A	N/A	N/A	N/A
	Duplicate ship	Y	N/A	Limit	N/A	N/A
	Inventory	Y	N/A	Limit	N/A	N/A
5. **Never ship, stay in warehouse**	Cancel order/shipment	Y	N/A	Limit	N/A	N/A
	Transferred order	Y	N/A	N/A	N/A	N/A
	Never ship to customer	Y	N/A	Limit	N/A	N/A
6. Not applicable		Y	N/A	Limit	N/A	N/A
7. Other		Y	N/A	Limit	N/A	N/A

New rules:

1. Return type must be create in duplicate (pair) for Vendor & Customer (V & C).
2. Allow changes only of return detail on either V or C. One return detail must remain unchanged (creation keys
3. Return type can be different for vendor & customer on the same RMA.
4. Option to block use of any return type.
5. Original ship date as guide for proper selection of return type.
6. Create default setup initially.

FIG.80B



your return request(s) have been approved.

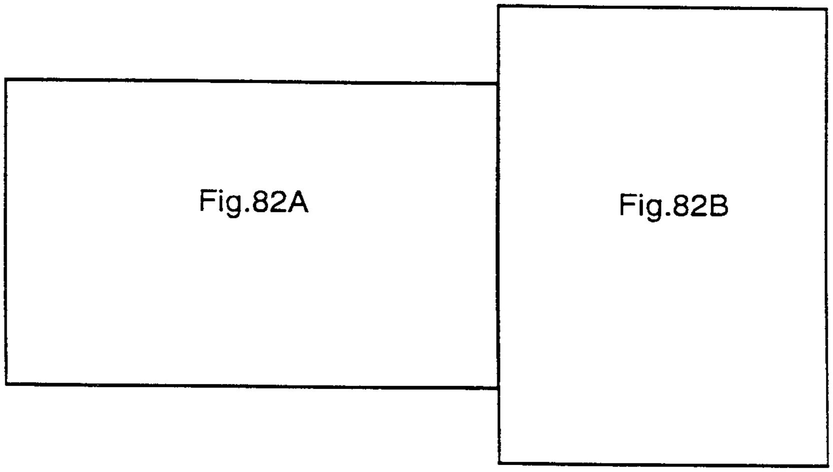
R-232421 is your RMA number.

If you want to exchange for a new product, please click Products below.
Please remember to check replacement option when you are ready to submit your replacement order.

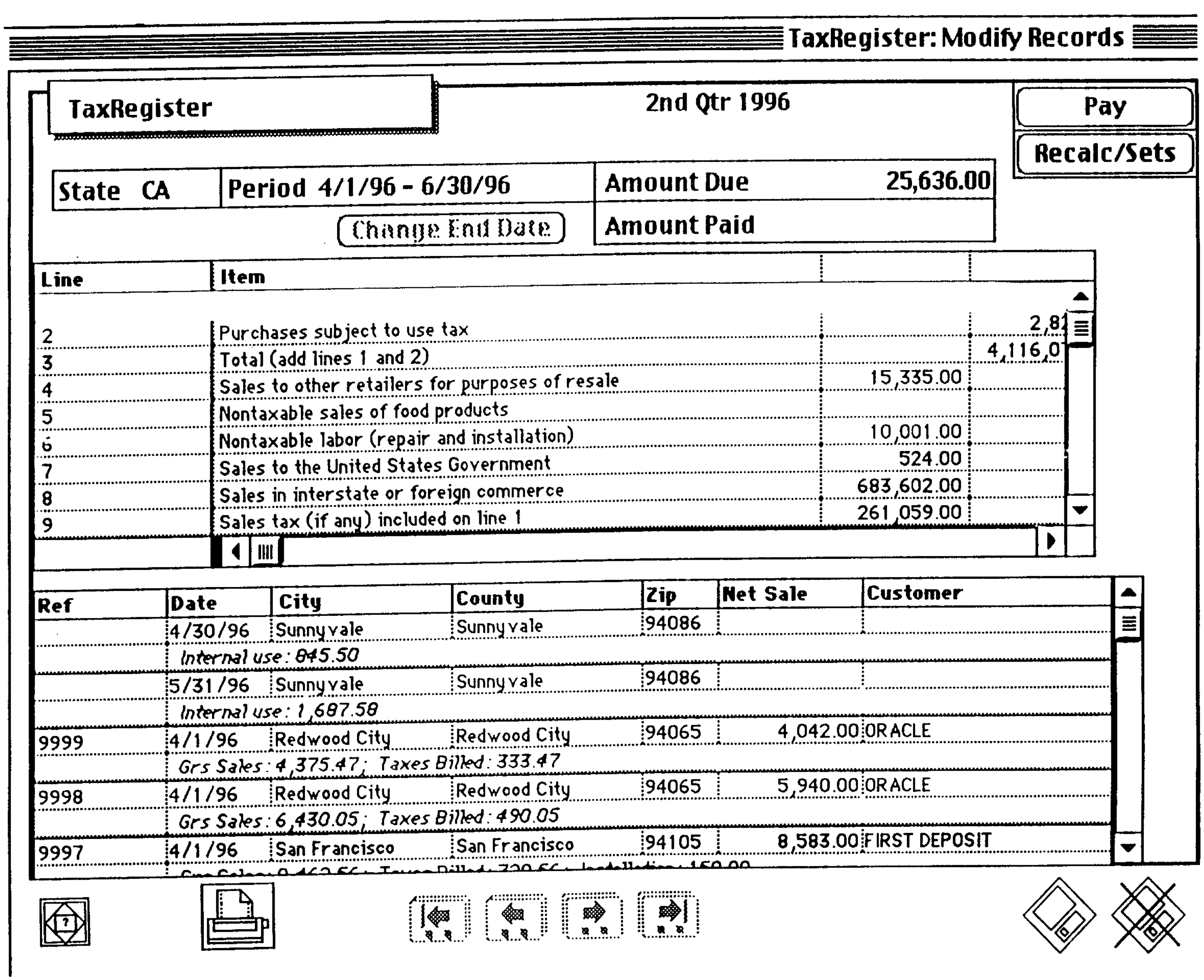
Please use the following links if you wish to leave the current screen and move on.

FIG. 81

Fig. 82



195437



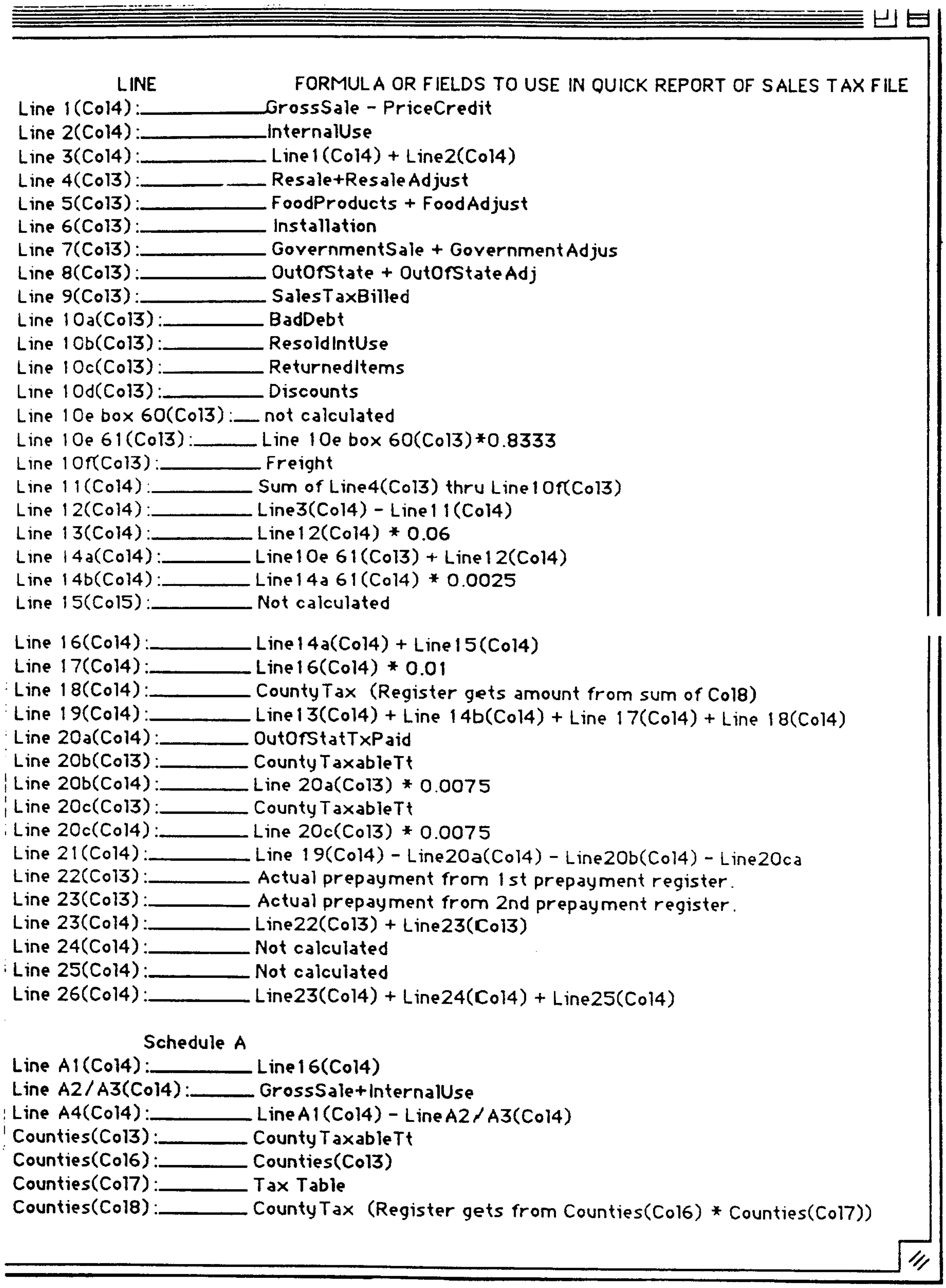
2nd Qtr 1996

State CA	Period 4/1/96 - 6/30/96	Amount Due	25,636.00
		Amount Paid	

Line	Item		
2	Purchases subject to use tax		2,8
3	Total (add lines 1 and 2)		4,116.0
4	Sales to other retailers for purposes of resale	15,335.00	
5	Nontaxable sales of food products		
6	Nontaxable labor (repair and installation)	10,001.00	
7	Sales to the United States Government	524.00	
8	Sales in interstate or foreign commerce	683,602.00	
9	Sales tax (if any) included on line 1	261,059.00	

Ref	Date	City	County	Zip	Net Sale	Customer
	4/30/96	Sunnyvale	Sunnyvale	94086		
	Internal use: 845.50					
	5/31/96	Sunnyvale	Sunnyvale	94086		
	Internal use: 1,687.58					
9999	4/1/96	Redwood City	Redwood City	94065	4,042.00	ORACLE
	Grs Sales: 4,375.47; Taxes Billed: 333.47					
9998	4/1/96	Redwood City	Redwood City	94065	5,940.00	ORACLE
	Grs Sales: 6,430.05; Taxes Billed: 490.05					
9997	4/1/96	San Francisco	San Francisco	94105	8,583.00	FIRST DEPOSIT

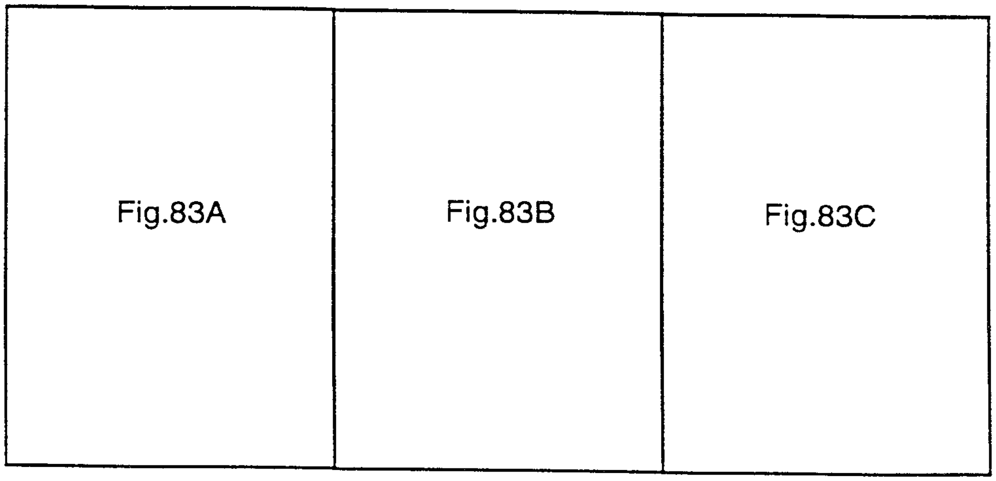
FIG. 82A

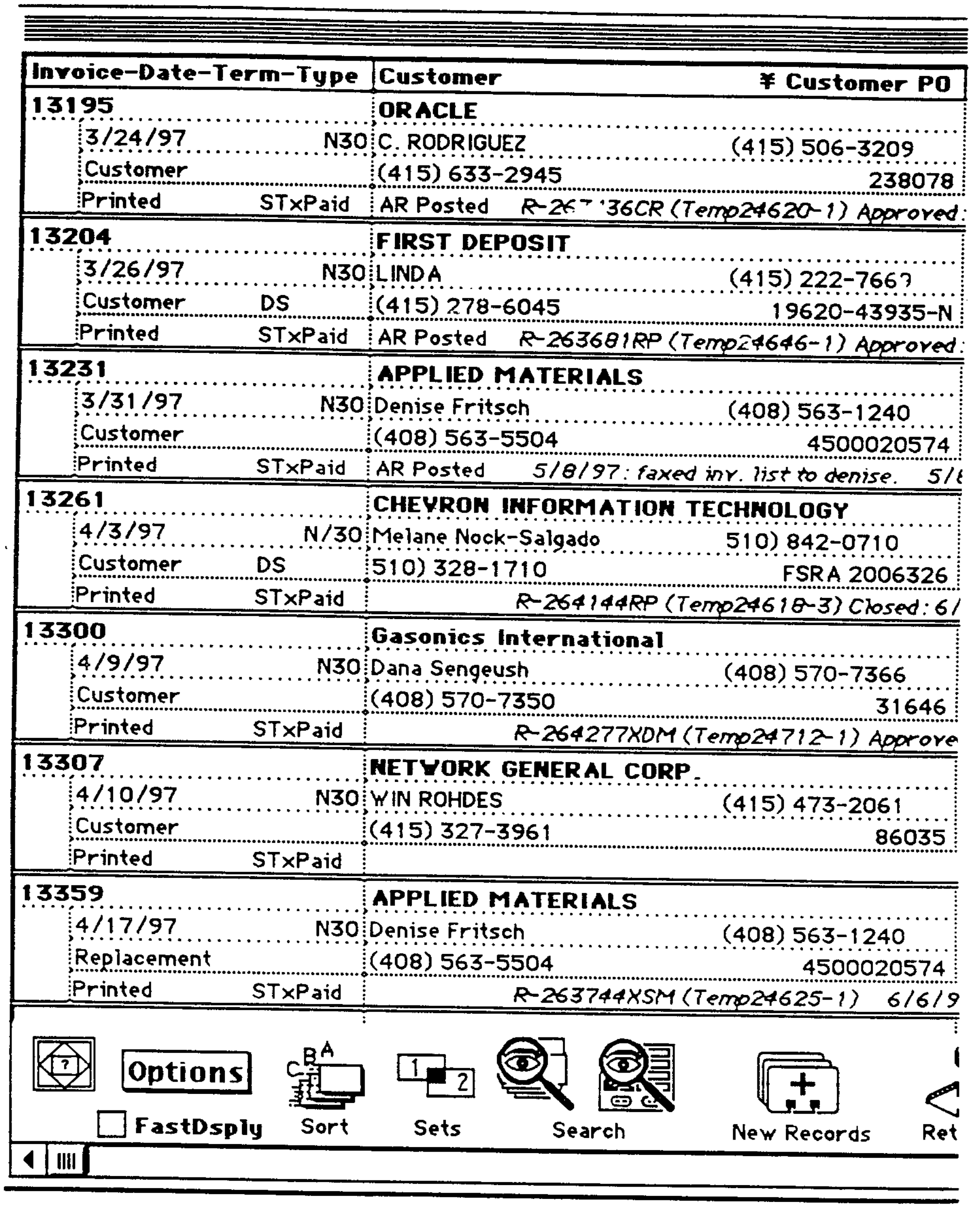


LINE	FORMULA OR FIELDS TO USE IN QUICK REPORT OF SALES TAX FILE
Line 1(Col4):	GrossSale - PriceCredit
Line 2(Col4):	InternalUse
Line 3(Col4):	Line1(Col4) + Line2(Col4)
Line 4(Col3):	Resale+ResaleAdjust
Line 5(Col3):	FoodProducts + FoodAdjust
Line 6(Col3):	Installation
Line 7(Col3):	GovernmentSale + GovernmentAdjus
Line 8(Col3):	OutOfState + OutOfStateAdj
Line 9(Col3):	SalesTaxBilled
Line 10a(Col3):	BadDebt
Line 10b(Col3):	ResoldIntUse
Line 10c(Col3):	ReturnedItems
Line 10d(Col3):	Discounts
Line 10e box 60(Col3):	not calculated
Line 10e 61(Col3):	Line 10e box 60(Col3)*0.8333
Line 10f(Col3):	Freight
Line 11(Col4):	Sum of Line4(Col3) thru Line10f(Col3)
Line 12(Col4):	Line3(Col4) - Line11(Col4)
Line 13(Col4):	Line12(Col4) * 0.06
Line 14a(Col4):	Line10e 61(Col3) + Line12(Col4)
Line 14b(Col4):	Line14a 61(Col4) * 0.0025
Line 15(Col5):	Not calculated
Line 16(Col4):	Line14a(Col4) + Line15(Col4)
Line 17(Col4):	Line16(Col4) * 0.01
Line 18(Col4):	CountyTax (Register gets amount from sum of Col8)
Line 19(Col4):	Line13(Col4) + Line 14b(Col4) + Line 17(Col4) + Line 18(Col4)
Line 20a(Col4):	OutOfStatTxPaid
Line 20b(Col3):	CountyTaxableTt
Line 20b(Col4):	Line 20a(Col3) * 0.0075
Line 20c(Col3):	CountyTaxableTt
Line 20c(Col4):	Line 20c(Col3) * 0.0075
Line 21(Col4):	Line 19(Col4) - Line20a(Col4) - Line20b(Col4) - Line20ca
Line 22(Col3):	Actual prepayment from 1st prepayment register.
Line 23(Col3):	Actual prepayment from 2nd prepayment register.
Line 23(Col4):	Line22(Col3) + Line23(Col3)
Line 24(Col4):	Not calculated
Line 25(Col4):	Not calculated
Line 26(Col4):	Line23(Col4) + Line24(Col4) + Line25(Col4)
Schedule A	
Line A1(Col4):	Line16(Col4)
Line A2/A3(Col4):	GrossSale+InternalUse
Line A4(Col4):	LineA1(Col4) - LineA2/A3(Col4)
Counties(Col3):	CountyTaxableTt
Counties(Col6):	Counties(Col3)
Counties(Col7):	Tax Table
Counties(Col8):	CountyTax (Register gets from Counties(Col6) * Counties(Col7))

FIG. 82B

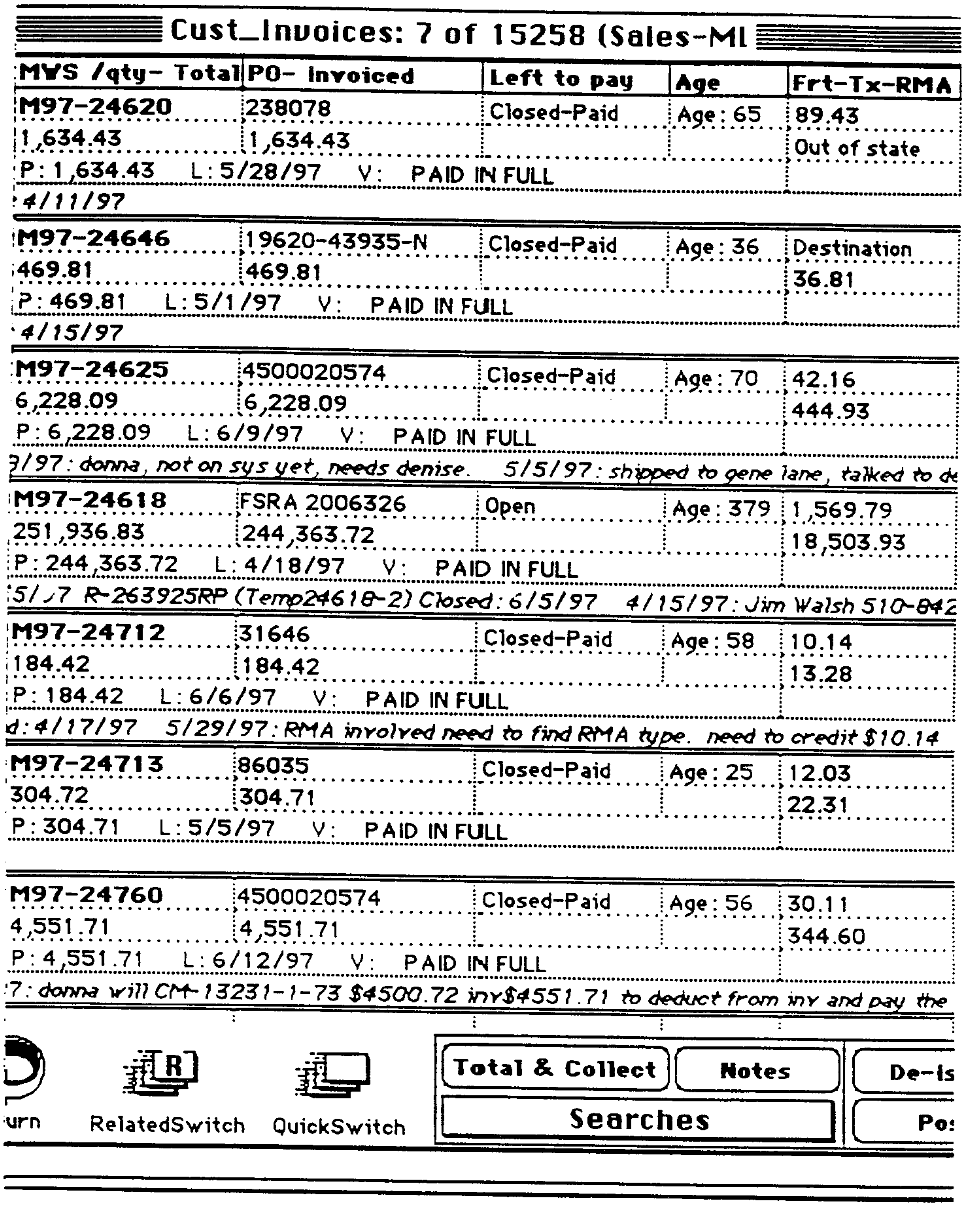
Fig. 83





Invoice-Date-Term-Type		Customer	¥ Customer PO
13195		**ORACLE**	
3/24/97	N30	C. RODRIGUEZ	(415) 506-3209
Customer		(415) 633-2945	238078
Printed	STxPaid	AR Posted	*R-26⁻ '36CR (Temp24620-1) Approved:*
13204		**FIRST DEPOSIT**	
3/26/97	N30	LINDA	(415) 222-766?
Customer	DS	(415) 278-6045	19620-43935-N
Printed	STxPaid	AR Posted	*R-263681RP (Temp24646-1) Approved:*
13231		**APPLIED MATERIALS**	
3/31/97	N30	Denise Fritsch	(408) 563-1240
Customer		(408) 563-5504	4500020574
Printed	STxPaid	AR Posted	*5/8/97: faxed inv. list to denise. 5/*
13261		**CHEVRON INFORMATION TECHNOLOGY**	
4/3/97	N/30	Melane Nock-Salgado	510) 842-0710
Customer	DS	510) 328-1710	FSRA 2006326
Printed	STxPaid		*R-264144RP (Temp24618-3) Closed: 6/*
13300		**Gasonics International**	
4/9/97	N30	Dana Sengeush	(408) 570-7366
Customer		(408) 570-7350	31646
Printed	STxPaid		*R-264277XDM (Temp24712-1) Approve*
13307		**NETWORK GENERAL CORP.**	
4/10/97	N30	WIN ROHDES	(415) 473-2061
Customer		(415) 327-3961	86035
Printed	STxPaid		
13359		**APPLIED MATERIALS**	
4/17/97	N30	Denise Fritsch	(408) 563-1240
Replacement		(408) 563-5504	4500020574
Printed	STxPaid		*R-263744XSM (Temp24625-1) 6/6/9*

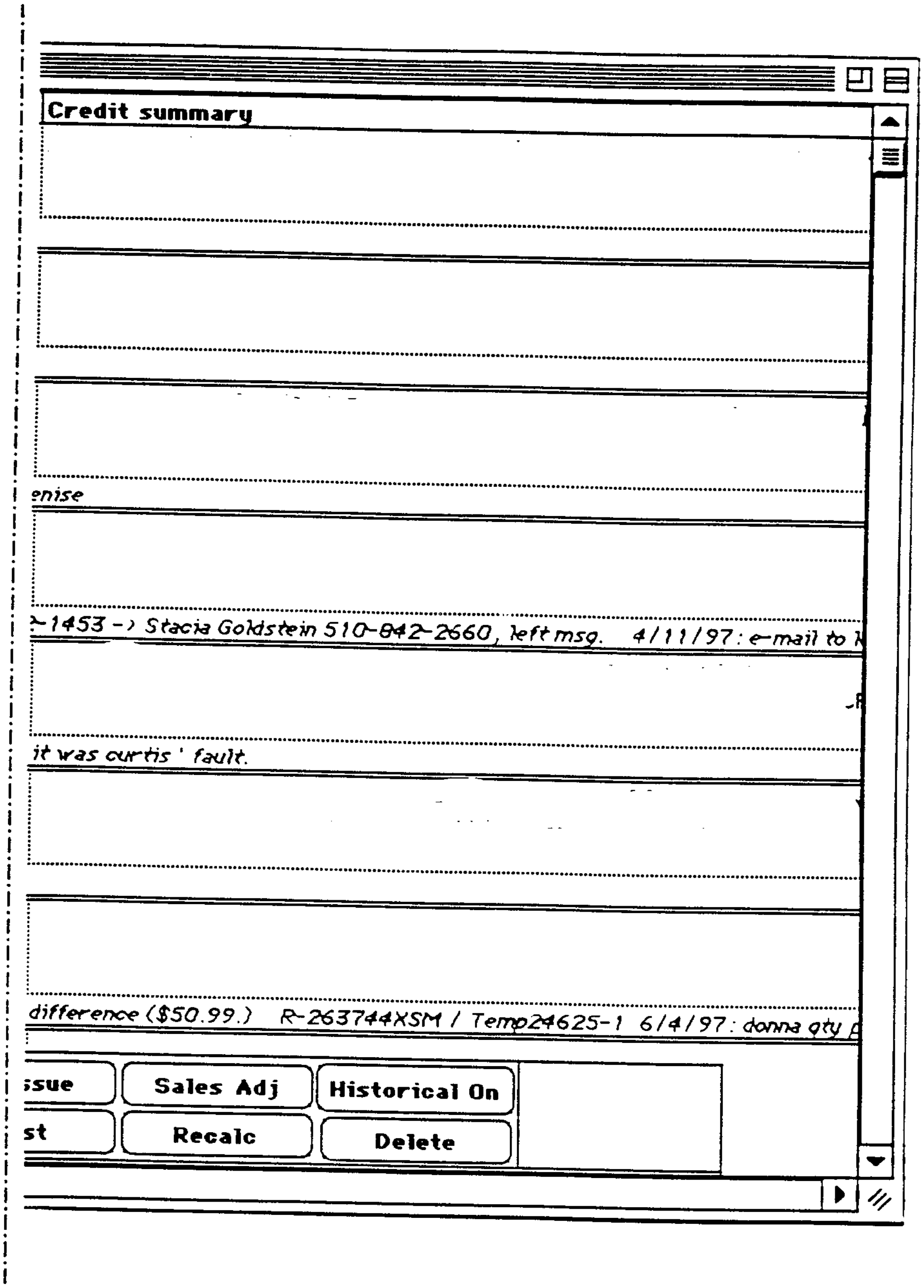
FIG. 83A



Cust_Invoices: 7 of 15258 (Sales-Ml

MVS /qty- Total	PO- Invoiced	Left to pay	Age	Frt-Tx-RMA
M97-24620	238078	Closed-Paid	Age: 65	89.43
1,634.43	1,634.43			Out of state
P: 1,634.43 L: 5/28/97 V: PAID IN FULL				
4/11/97				
M97-24646	19620-43935-N	Closed-Paid	Age: 36	Destination
469.81	469.81			36.81
P: 469.81 L: 5/1/97 V: PAID IN FULL				
4/15/97				
M97-24625	4500020574	Closed-Paid	Age: 70	42.16
6,228.09	6,228.09			444.93
P: 6,228.09 L: 6/9/97 V: PAID IN FULL				
9/97: donna, not on sys yet, needs denise. 5/5/97: shipped to gene lane, talked to de				
M97-24618	FSRA 2006326	Open	Age: 379	1,569.79
251,936.83	244,363.72			18,503.93
P: 244,363.72 L: 4/18/97 V: PAID IN FULL				
5/97 R-263925RP (Temp24618-2) Closed: 6/5/97 4/15/97: Jim Walsh 510-842				
M97-24712	31646	Closed-Paid	Age: 58	10.14
184.42	184.42			13.28
P: 184.42 L: 6/6/97 V: PAID IN FULL				
d: 4/17/97 5/29/97: RMA involved need to find RMA type. need to credit $10.14				
M97-24713	86035	Closed-Paid	Age: 25	12.03
304.72	304.71			22.31
P: 304.71 L: 5/5/97 V: PAID IN FULL				
M97-24760	4500020574	Closed-Paid	Age: 56	30.11
4,551.71	4,551.71			344.60
P: 4,551.71 L: 6/12/97 V: PAID IN FULL				
7: donna will CM-13231-1-73 $4500.72 inv$4551.71 to deduct from inv and pay the				

FIG. 83B



Credit summary

enise

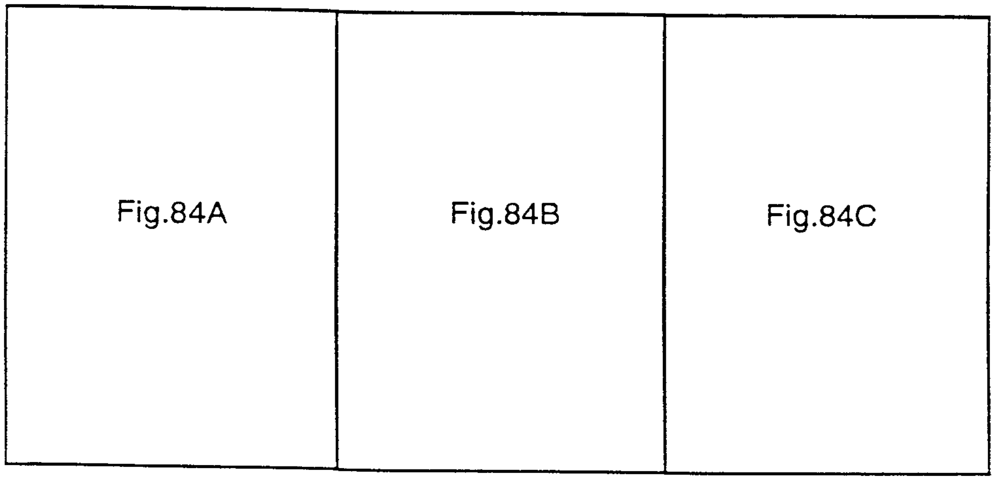
-1453 -› Stacia Goldstein 510-842-2660, left msg. 4/11/97: e-mail to

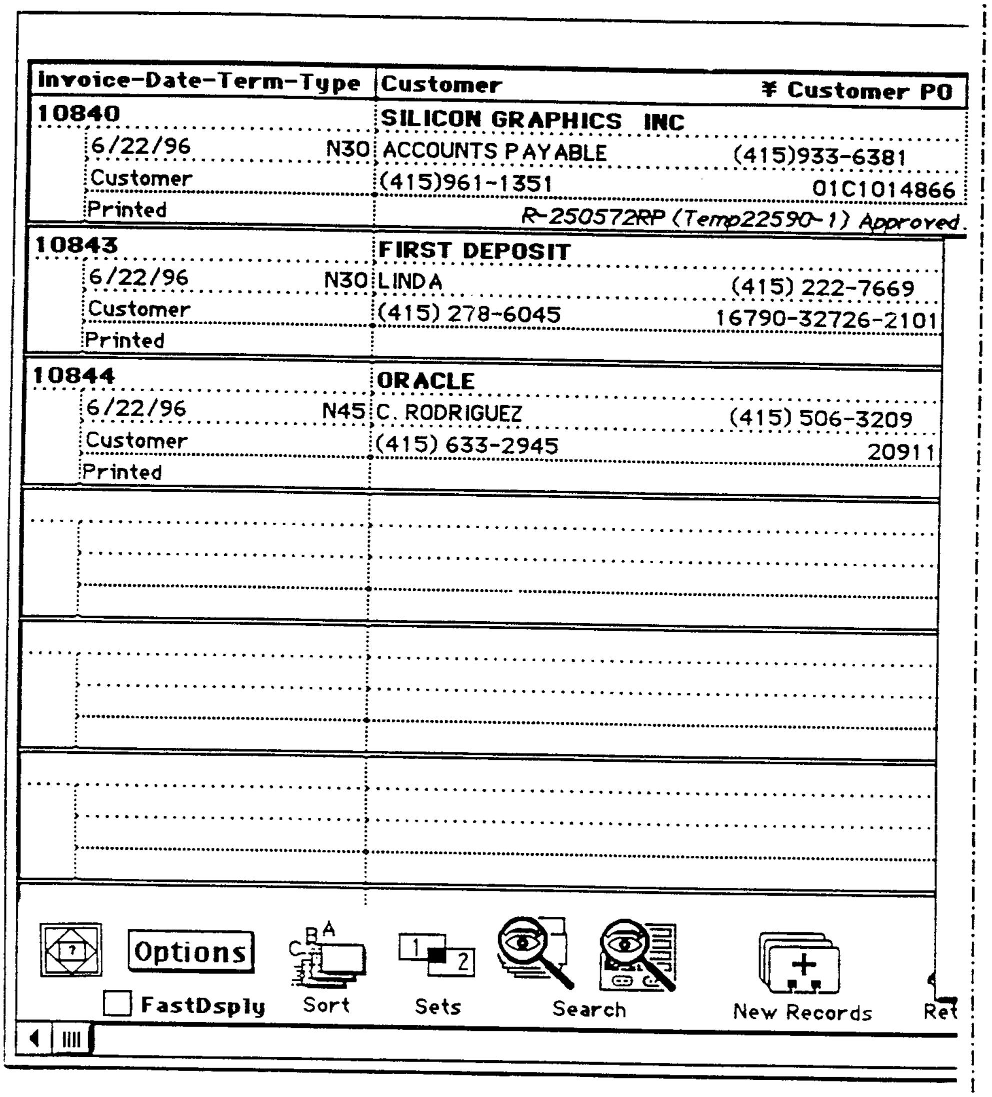
it was curtis ' fault.

difference ($50.99.) R-263744XSM / Temp24625-1 6/4/97: donna qty

FIG. 83C

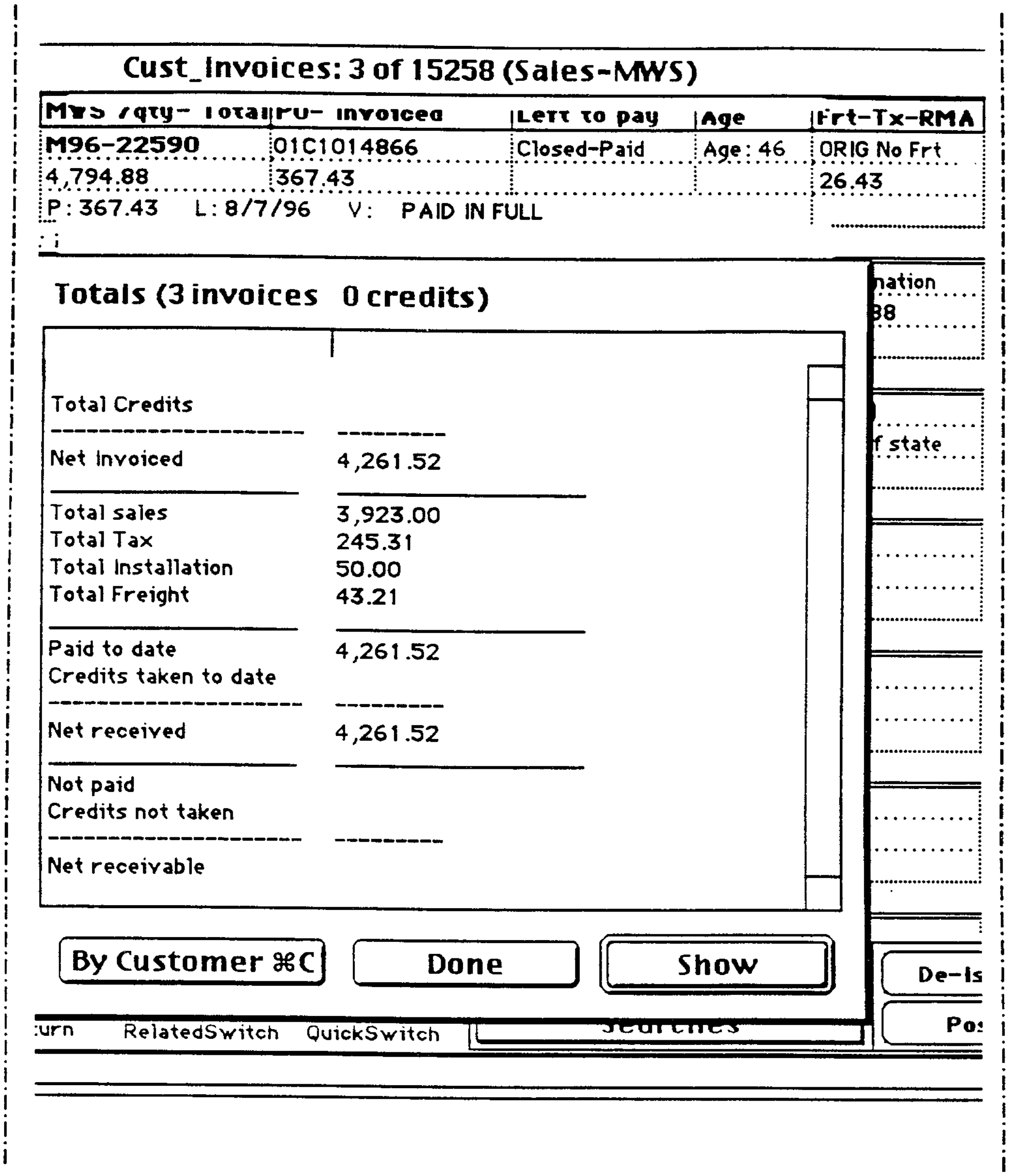
Fig. 84





Invoice-Date-Term-Type		Customer	¥ Customer PO
10840		**SILICON GRAPHICS INC**	
6/22/96	N30	ACCOUNTS PAYABLE	(415)933-6381
Customer		(415)961-1351	01C1014866
Printed			*R-250572RP (Temp22590-1) Approved.*
10843		**FIRST DEPOSIT**	
6/22/96	N30	LINDA	(415) 222-7669
Customer		(415) 278-6045	16790-32726-2101
Printed			
10844		**ORACLE**	
6/22/96	N45	C. RODRIGUEZ	(415) 506-3209
Customer		(415) 633-2945	20911
Printed			

FIG. 84A



Cust_Invoices: 3 of 15258 (Sales-MWS)

MWS /qty- Total	PO- Invoiced	Left to pay	Age	Frt-Tx-RMA
M96-22590	01C1014866	Closed-Paid	Age: 46	ORIG No Frt
4,794.88	367.43			26.43

P: 367.43 L: 8/7/96 V: PAID IN FULL

Totals (3 invoices 0 credits)

Total Credits	
Net Invoiced	4,261.52
Total sales	3,923.00
Total Tax	245.31
Total Installation	50.00
Total Freight	43.21
Paid to date	4,261.52
Credits taken to date	
Net received	4,261.52
Not paid	
Credits not taken	
Net receivable	

FIG. 84B

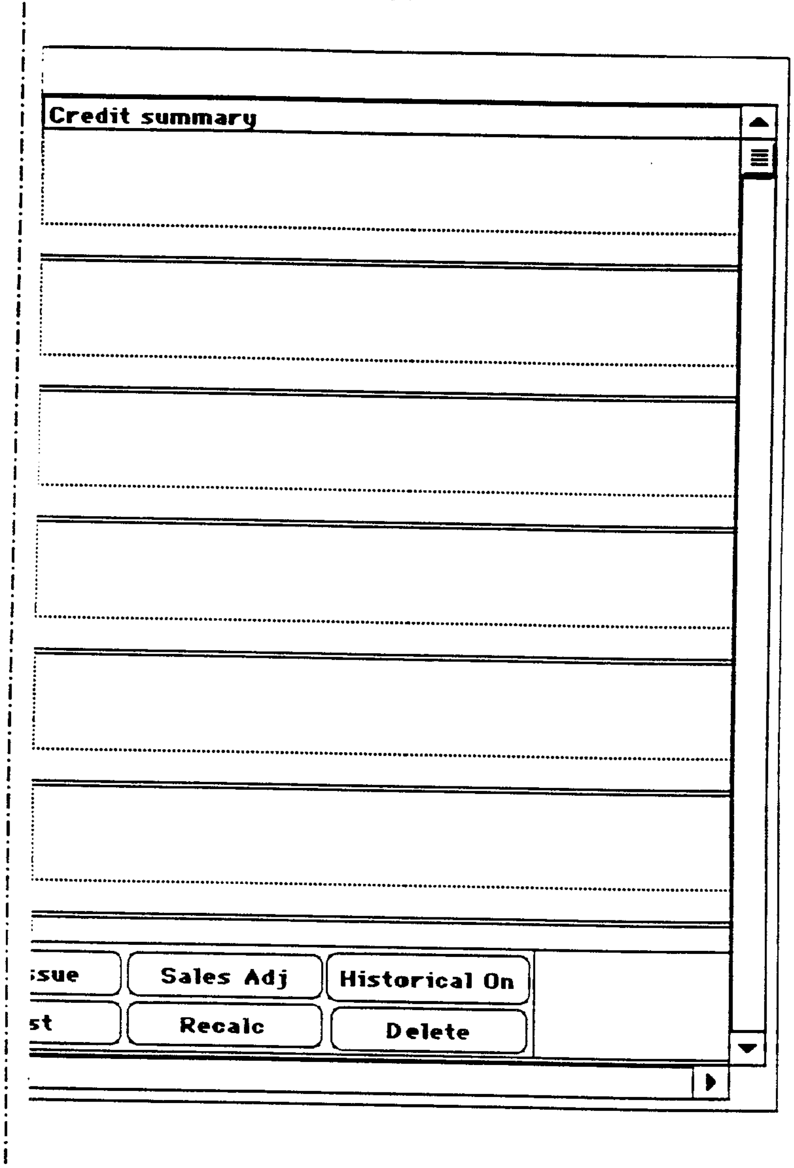
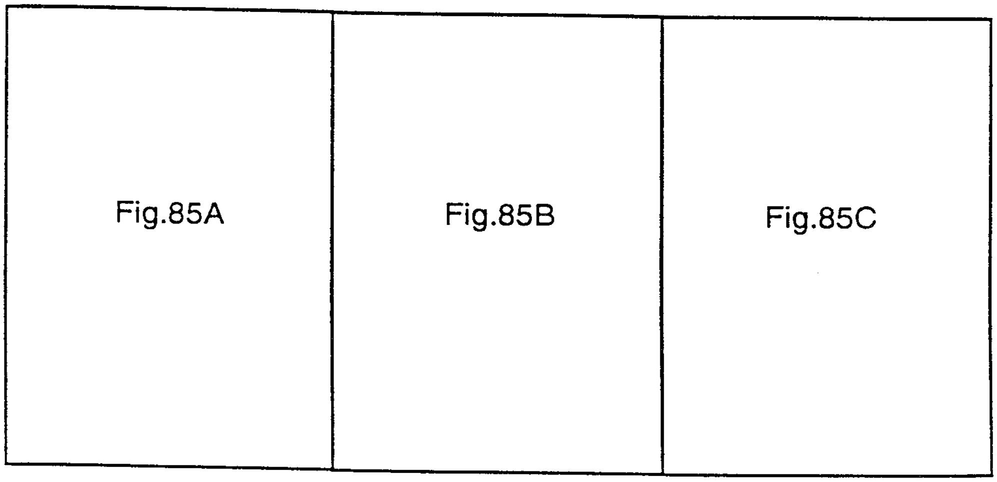
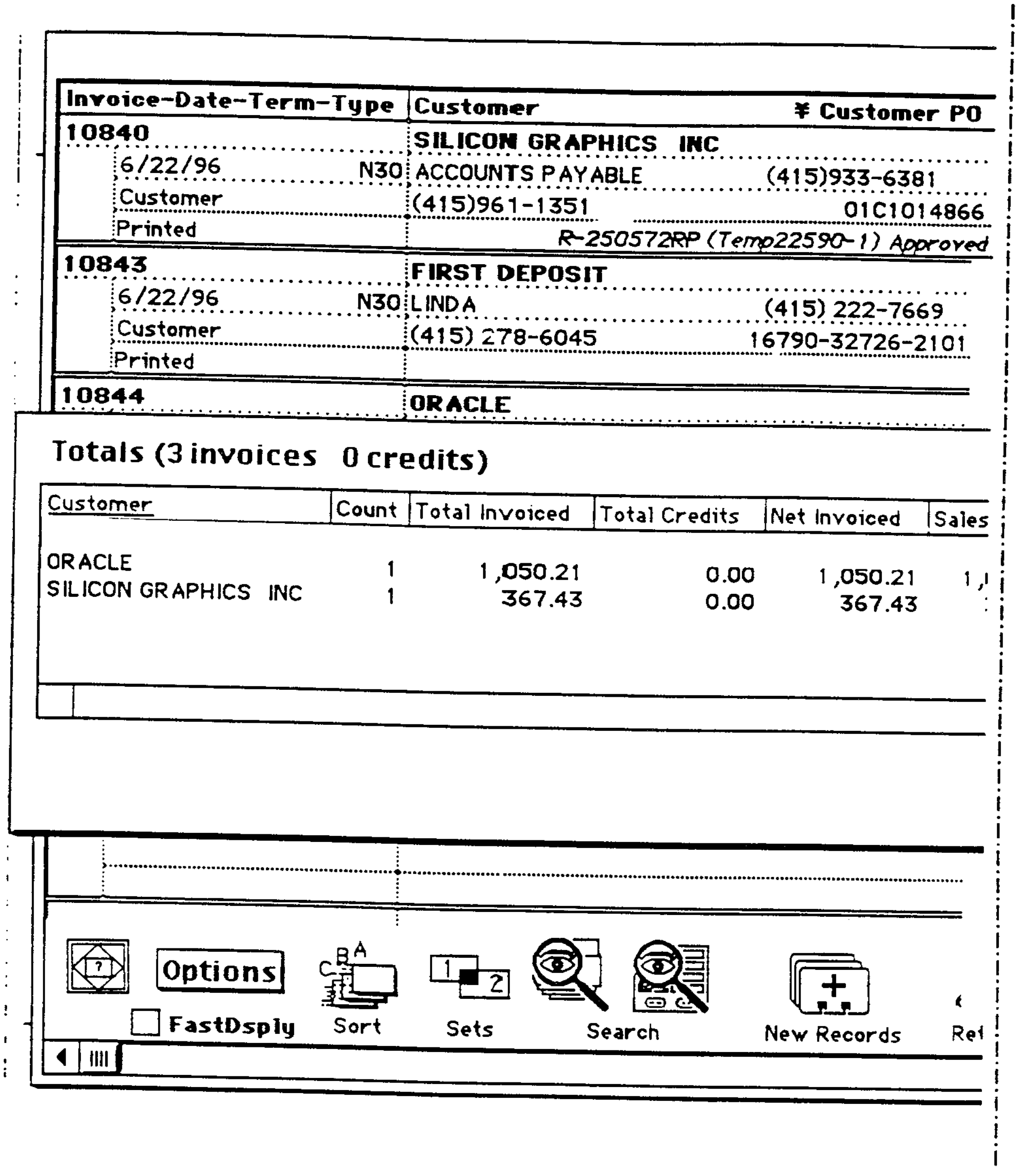

Credit summary
ssue
Sales Adj
Historical On
st
Recalc
Delete

FIG. 84C

Fig. 85



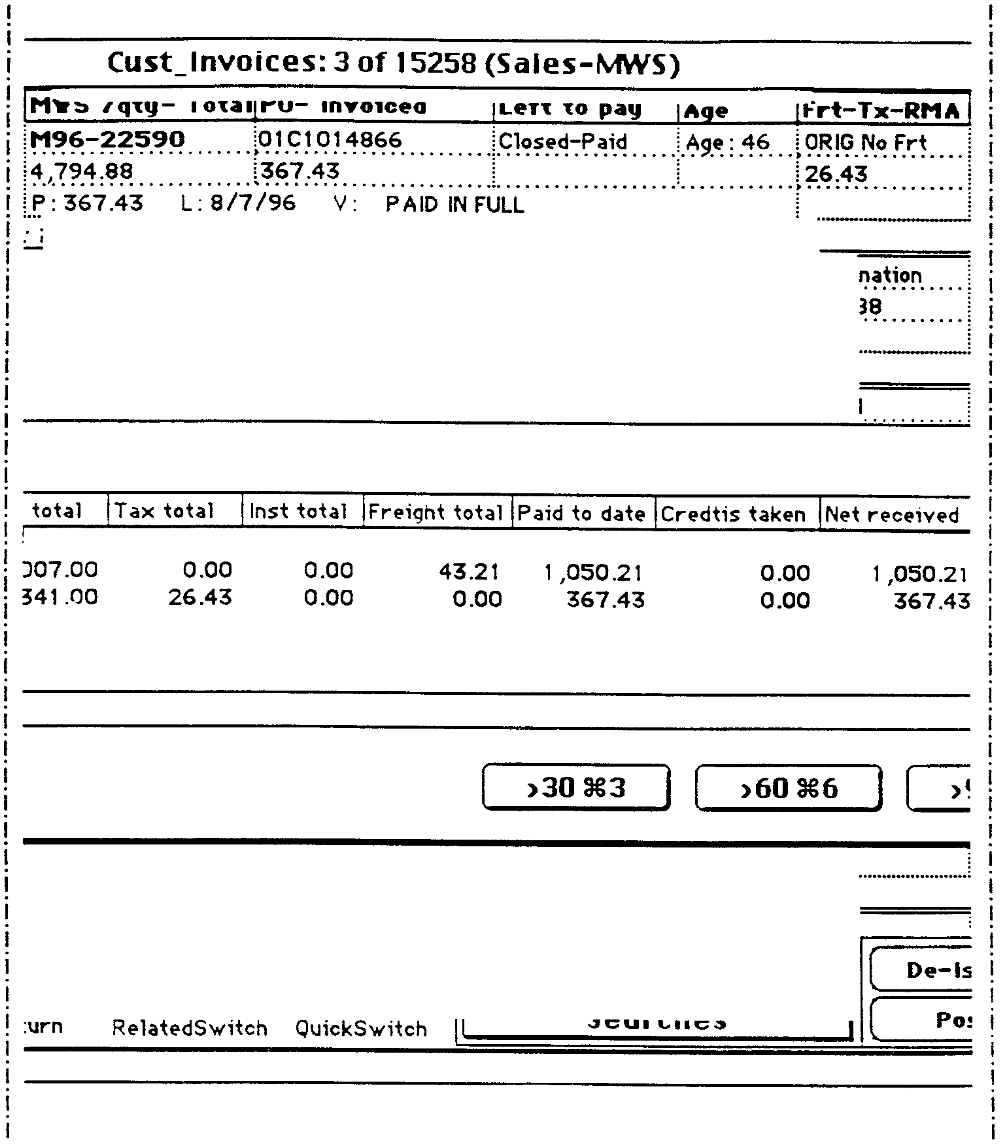


Invoice-Date-Term-Type	Customer	¥ Customer PO
10840	**SILICON GRAPHICS INC**	
6/22/96 N30	ACCOUNTS PAYABLE	(415)933-6381
Customer	(415)961-1351	01C1014866
Printed	*R-250572RP (Temp22590-1) Approved*	
10843	**FIRST DEPOSIT**	
6/22/96 N30	LINDA	(415) 222-7669
Customer	(415) 278-6045	16790-32726-2101
Printed		
10844	**ORACLE**	

Totals (3 invoices 0 credits)

Customer	Count	Total Invoiced	Total Credits	Net Invoiced	Sales
ORACLE	1	1,050.21	0.00	1,050.21	1,
SILICON GRAPHICS INC	1	367.43	0.00	367.43	

FIG. 85A



Cust_Invoices: 3 of 15258 (Sales-MWS)

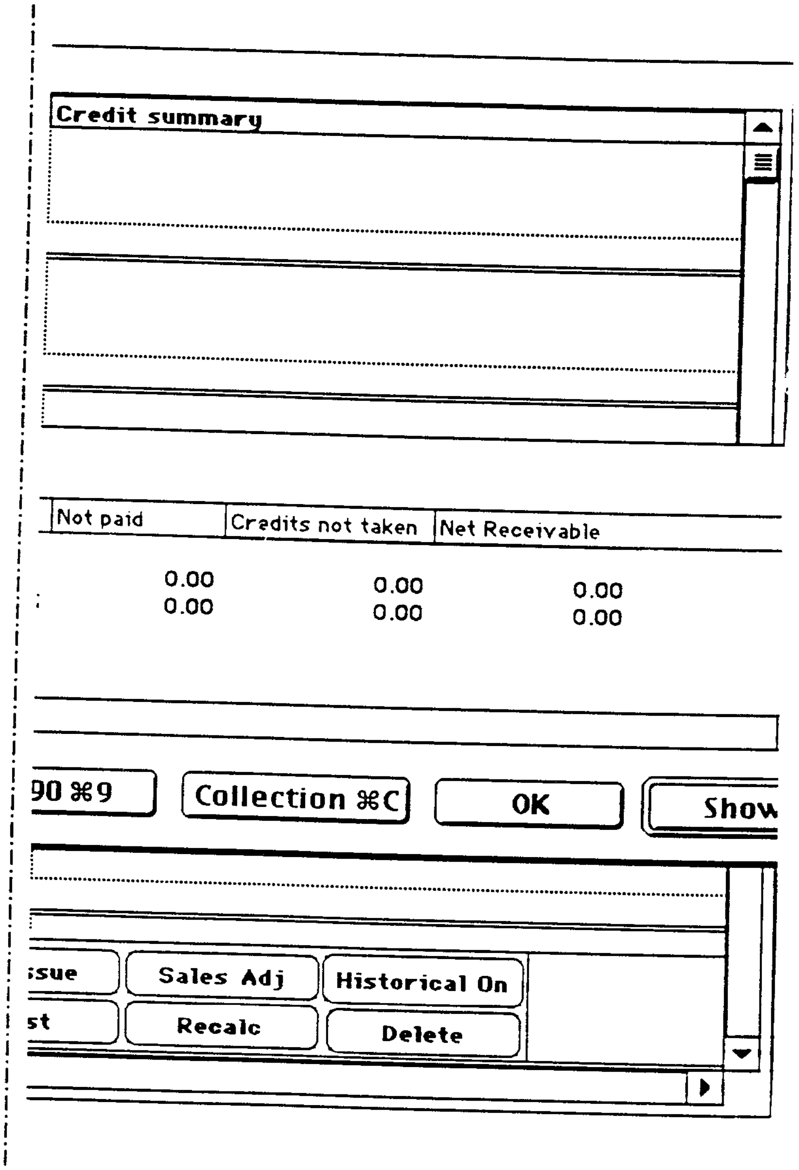
MWS #/qty- Total	PO- Invoiced	Left to pay	Age	Frt-Tx-RMA
M96-22590	01C1014866	Closed-Paid	Age : 46	ORIG No Frt
4,794.88	367.43			26.43

P : 367.43 L : 8/7/96 V : PAID IN FULL

nation
38

total	Tax total	Inst total	Freight total	Paid to date	Credtis taken	Net received
07.00	0.00	0.00	43.21	1,050.21	0.00	1,050.21
341.00	26.43	0.00	0.00	367.43	0.00	367.43

FIG. 85B

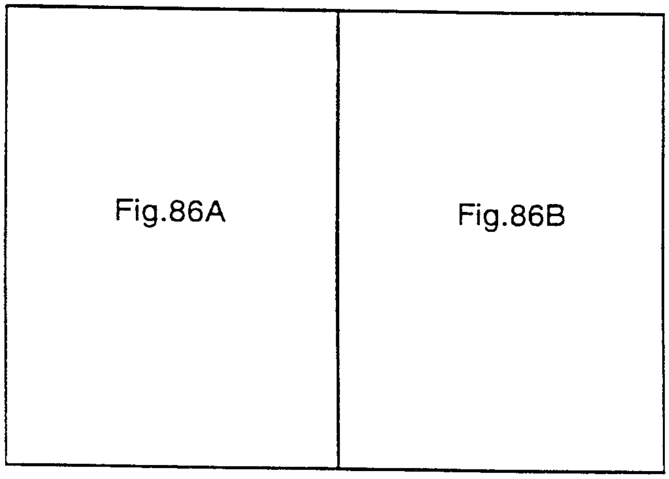


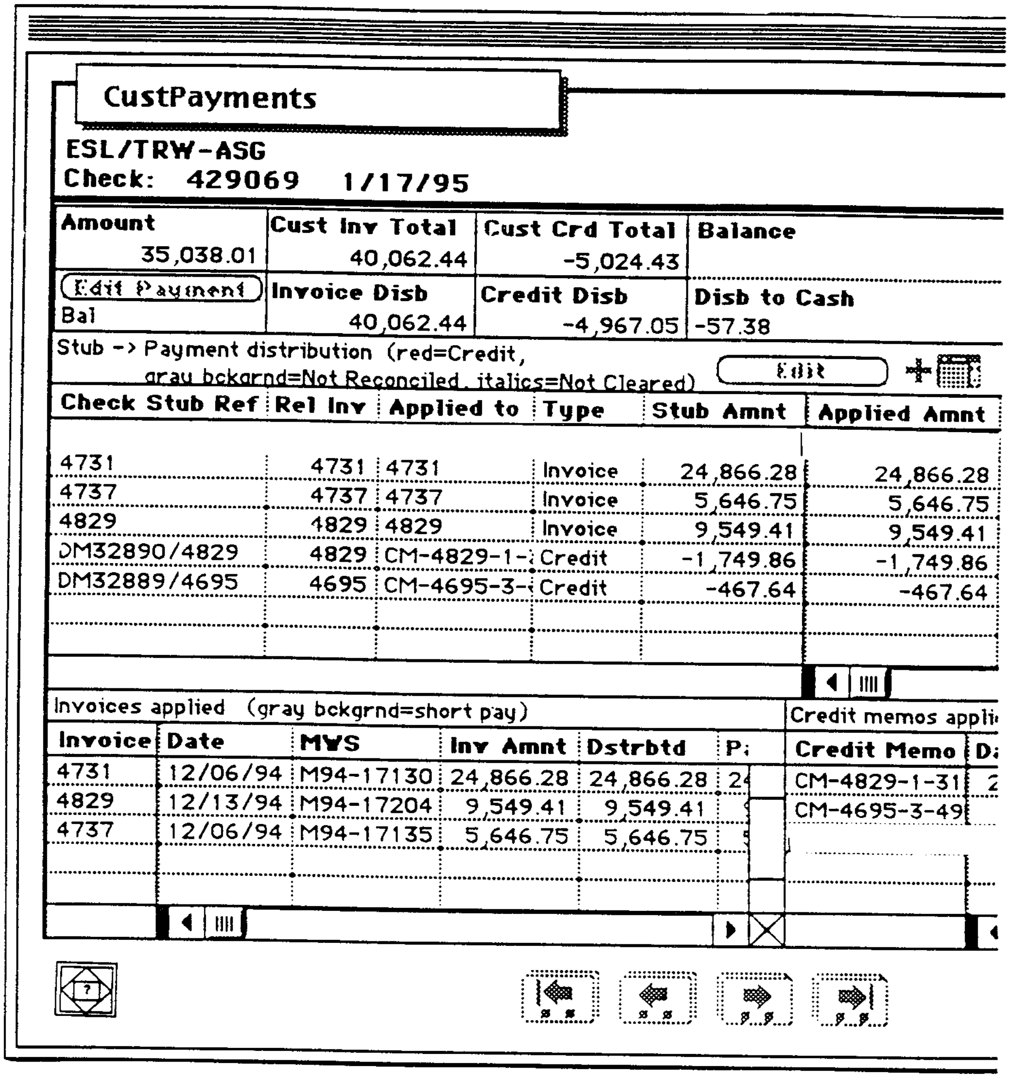
Credit summary

Not paid	Credits not taken	Net Receivable
0.00	0.00	0.00
0.00	0.00	0.00

FIG. 85C

Fig. 86





ESL/TRW-ASG
Check: 429069 1/17/95

Amount	Cust Inv Total	Cust Crd Total	Balance
35,038.01	40,062.44	-5,024.43	

Bal	Invoice Disb	Credit Disb	Disb to Cash
	40,062.44	-4,967.05	-57.38

Stub -> Payment distribution (red=Credit, gray bckgrnd=Not Reconciled, italics=Not Cleared)

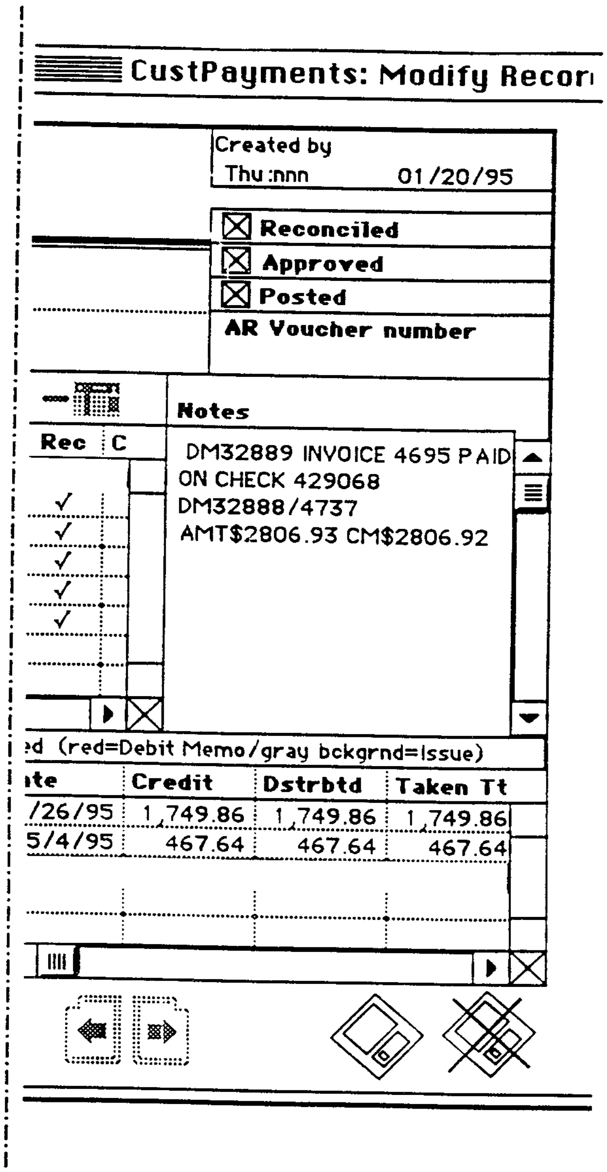
Check Stub Ref	Rel Inv	Applied to	Type	Stub Amnt	Applied Amnt
4731	4731	4731	Invoice	24,866.28	24,866.28
4737	4737	4737	Invoice	5,646.75	5,646.75
4829	4829	4829	Invoice	9,549.41	9,549.41
DM32890/4829	4829	CM-4829-1-	Credit	-1,749.86	-1,749.86
DM32889/4695	4695	CM-4695-3-	Credit	-467.64	-467.64

Invoices applied (gray bckgrnd=short pay)

Invoice	Date	MWS	Inv Amnt	Dstrbtd	P
4731	12/06/94	M94-17130	24,866.28	24,866.28	24
4829	12/13/94	M94-17204	9,549.41	9,549.41	
4737	12/06/94	M94-17135	5,646.75	5,646.75	

Credit Memo	D
CM-4829-1-31	2
CM-4695-3-49	

FIG. 86A



CustPayments: Modify Recor

Created by
Thu:nnn 01/20/95

☒ Reconciled
☒ Approved
☒ Posted

AR Voucher number

Notes

DM32889 INVOICE 4695 PAID ON CHECK 429068 DM32888/4737 AMT$2806.93 CM$2806.92

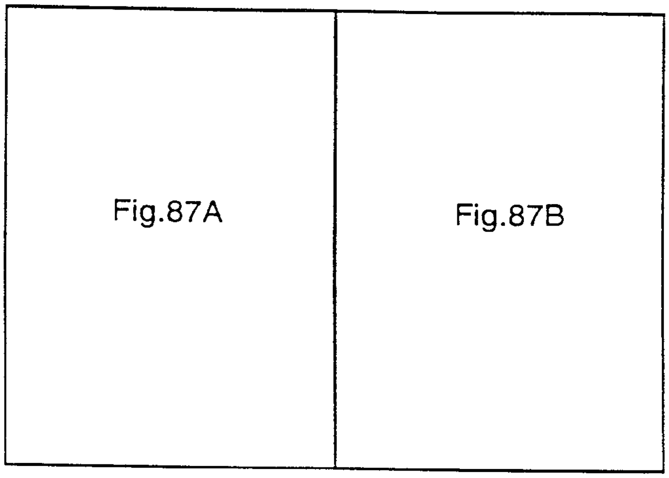
Rec	C
✓	
✓	
✓	
✓	
✓	

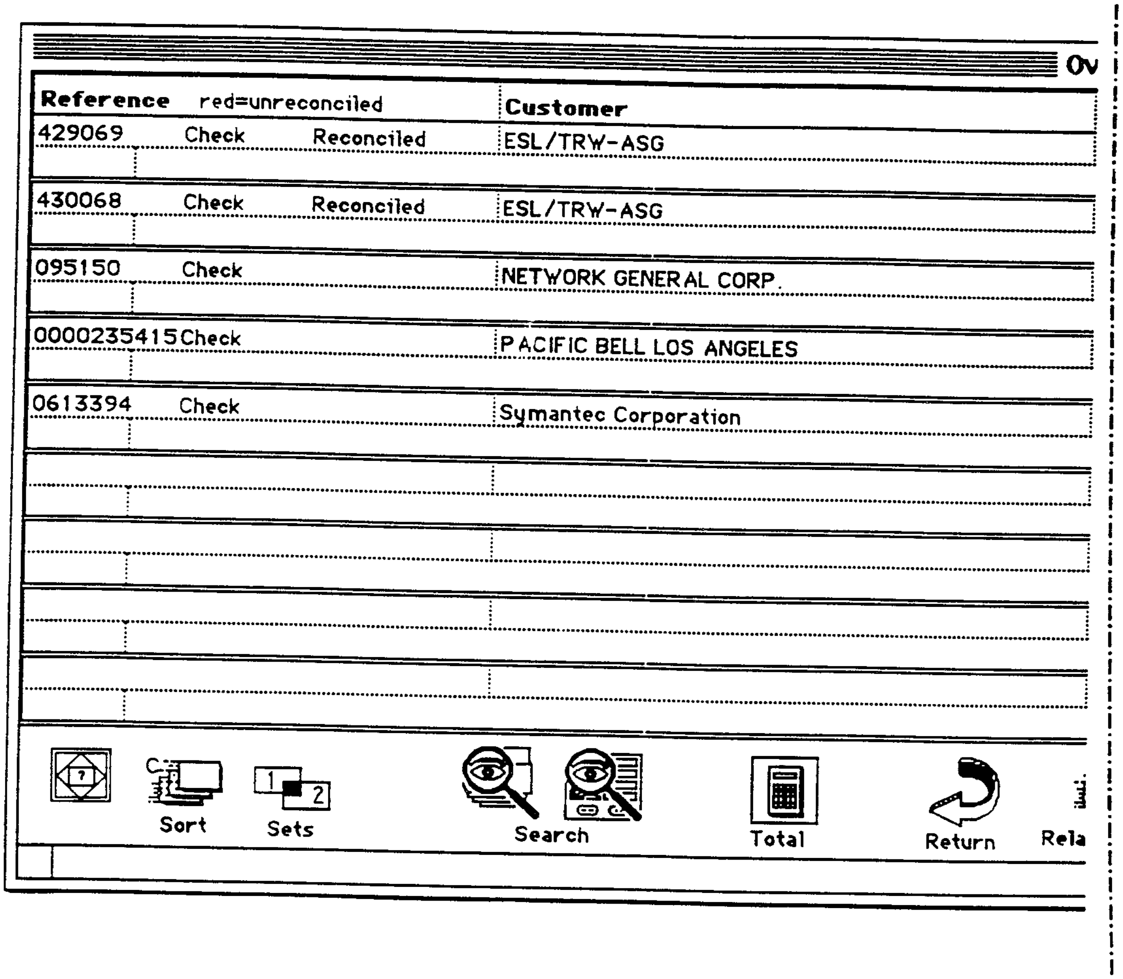
ed (red=Debit Memo/gray bckgrnd=Issue)

ite	Credit	Dstrbtd	Taken Tt
/26/95	1,749.86	1,749.86	1,749.86
5/4/95	467.64	467.64	467.64

FIG. 86B

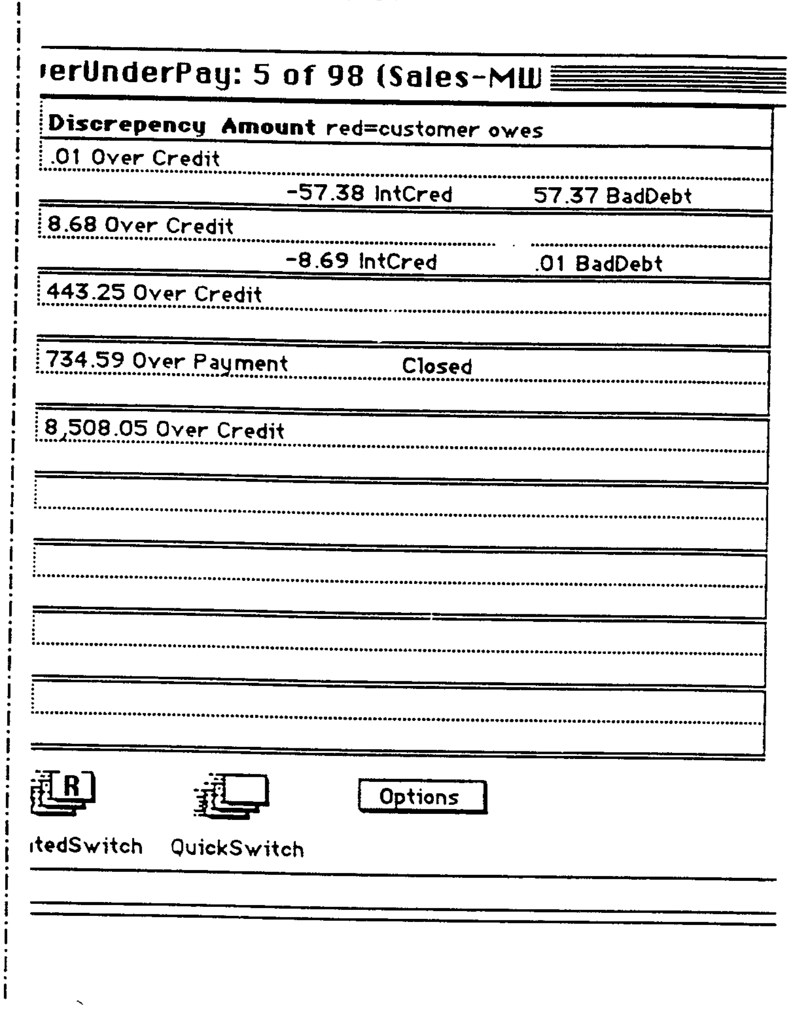
Fig. 87





Reference	red=unreconciled		Customer
429069	Check	Reconciled	ESL/TRW-ASG
430068	Check	Reconciled	ESL/TRW-ASG
095150	Check		NETWORK GENERAL CORP.
0000235415	Check		PACIFIC BELL LOS ANGELES
0613394	Check		Symantec Corporation

FIG. 87A



erUnderPay: 5 of 98 (Sales-MW

Discrepency Amount red=customer owes

.01 Over Credit

-57.38 IntCred 57.37 BadDebt

8.68 Over Credit

-8.69 IntCred .01 BadDebt

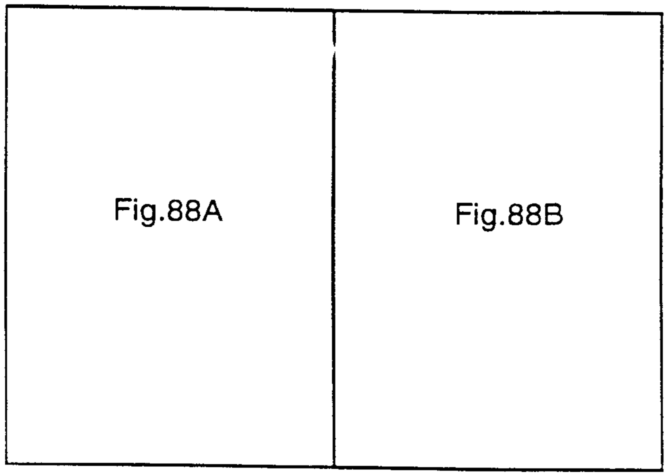
443.25 Over Credit

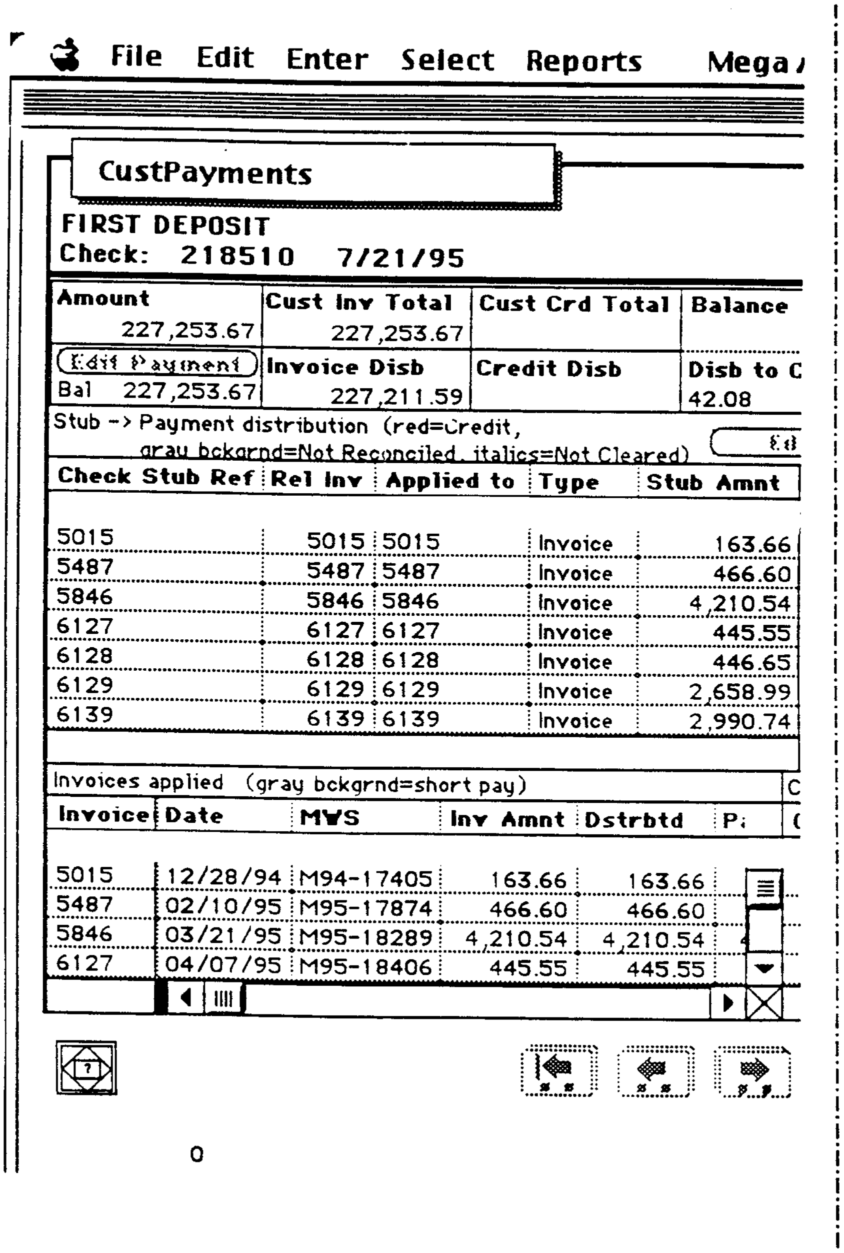
734.59 Over Payment Closed

8,508.05 Over Credit

FIG. 87B

Fig.88





CustPayments

FIRST DEPOSIT
Check: 218510 7/21/95

Amount	Cust Inv Total	Cust Crd Total	Balance
227,253.67	227,253.67		
Bal 227,253.67	Invoice Disb 227,211.59	Credit Disb	Disb to C 42.08

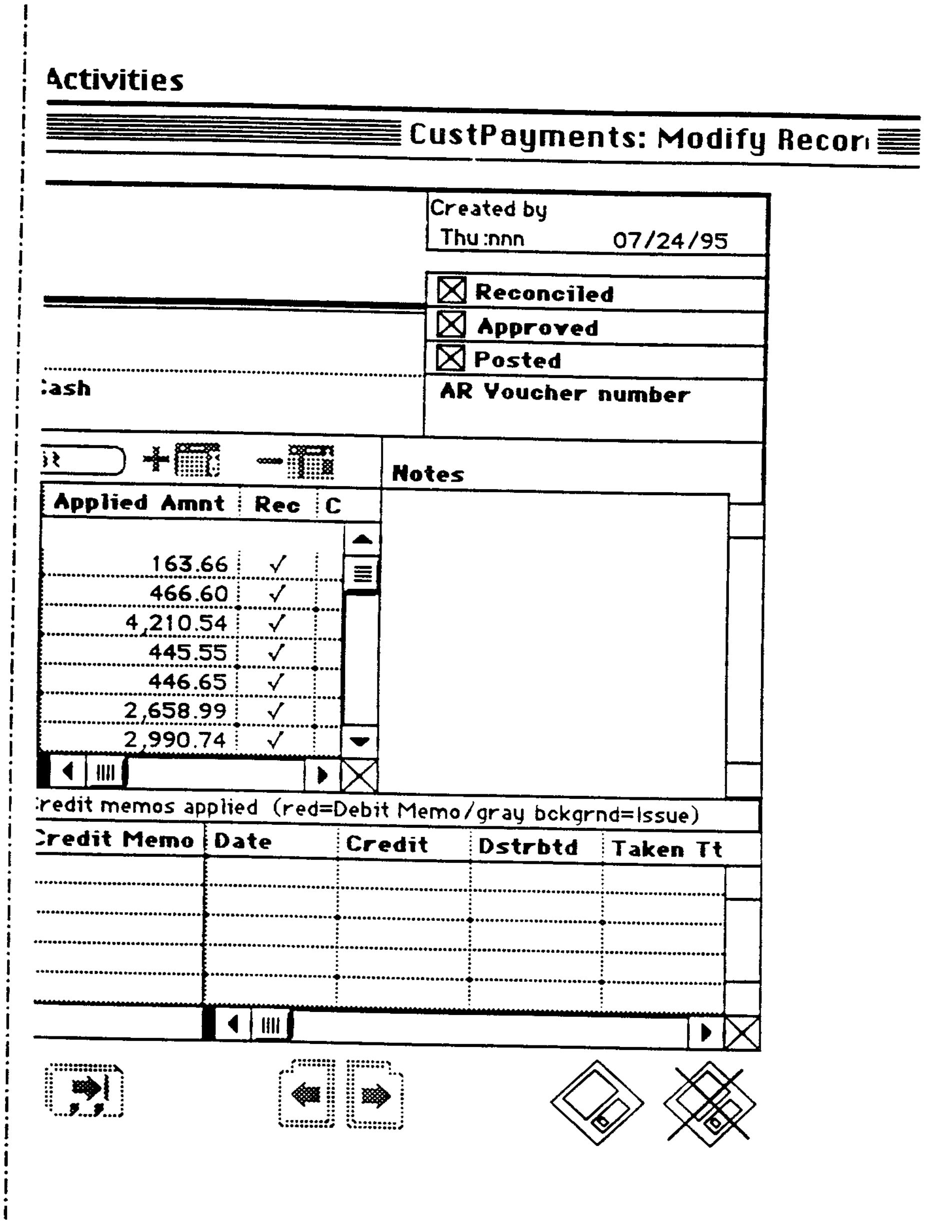
Stub -> Payment distribution (red=Credit,
gray bckgrnd=Not Reconciled, italics=Not Cleared)

Check Stub Ref	Rel Inv	Applied to	Type	Stub Amnt
5015	5015	5015	Invoice	163.66
5487	5487	5487	Invoice	466.60
5846	5846	5846	Invoice	4,210.54
6127	6127	6127	Invoice	445.55
6128	6128	6128	Invoice	446.65
6129	6129	6129	Invoice	2,658.99
6139	6139	6139	Invoice	2,990.74

Invoices applied (gray bckgrnd=short pay)

Invoice	Date	MVS	Inv Amnt	Dstrbtd
5015	12/28/94	M94-17405	163.66	163.66
5487	02/10/95	M95-17874	466.60	466.60
5846	03/21/95	M95-18289	4,210.54	4,210.54
6127	04/07/95	M95-18406	445.55	445.55

FIG. 88A



Activities

CustPayments: Modify Recor

Created by
Thu :nnn 07/24/95

☒ Reconciled
☒ Approved
☒ Posted
AR Voucher number

ash

Notes

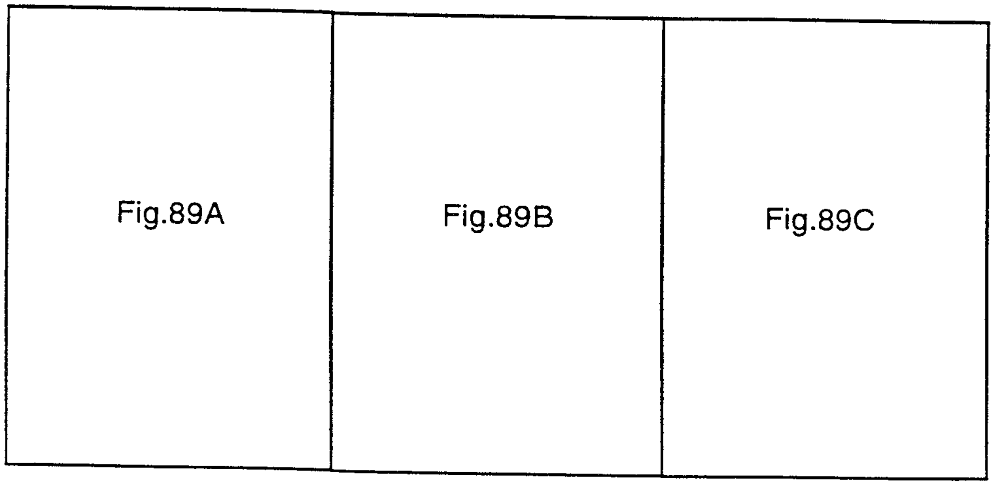
Applied Amnt	Rec	C
163.66	✓	
466.60	✓	
4,210.54	✓	
445.55	✓	
446.65	✓	
2,658.99	✓	
2,990.74	✓	

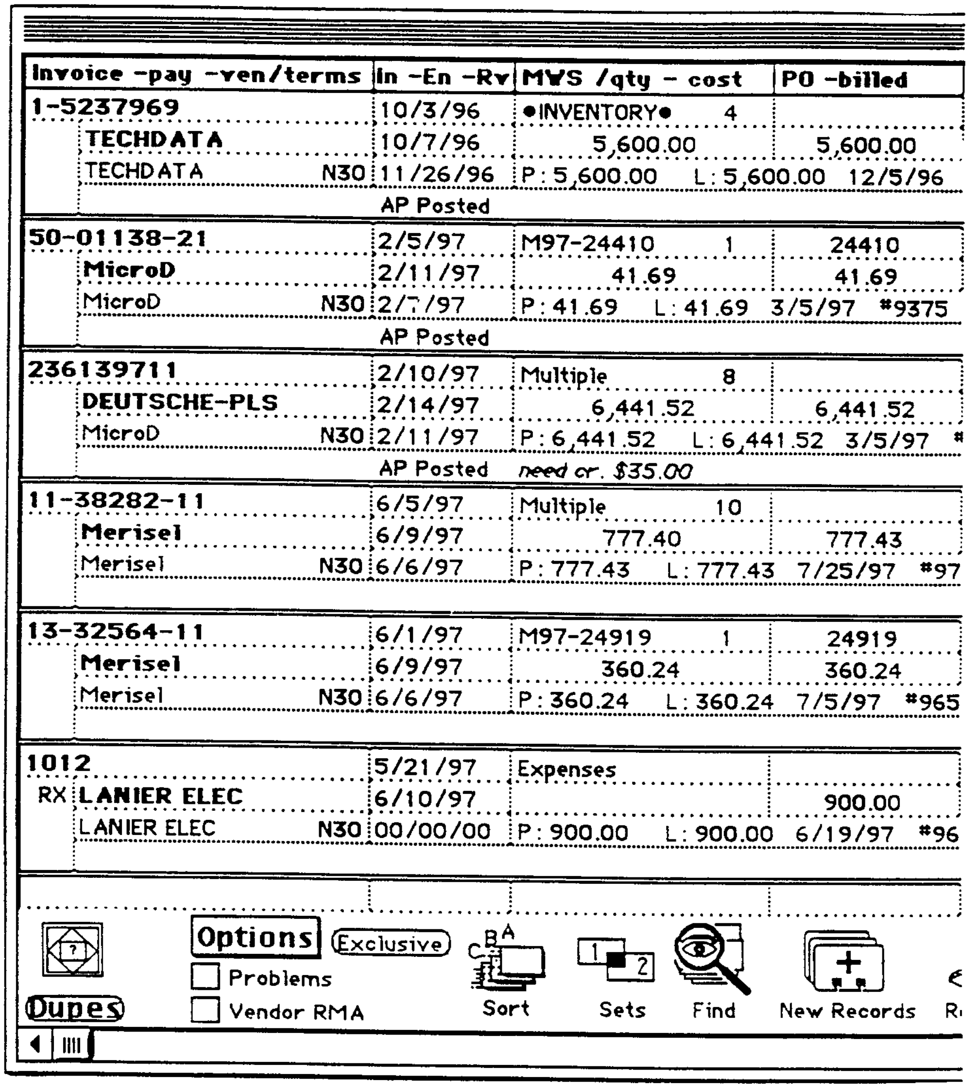
redit memos applied (red=Debit Memo/gray bckgrnd=Issue)

redit Memo	Date	Credit	Dstrbtd	Taken Tt

FIG. 88B

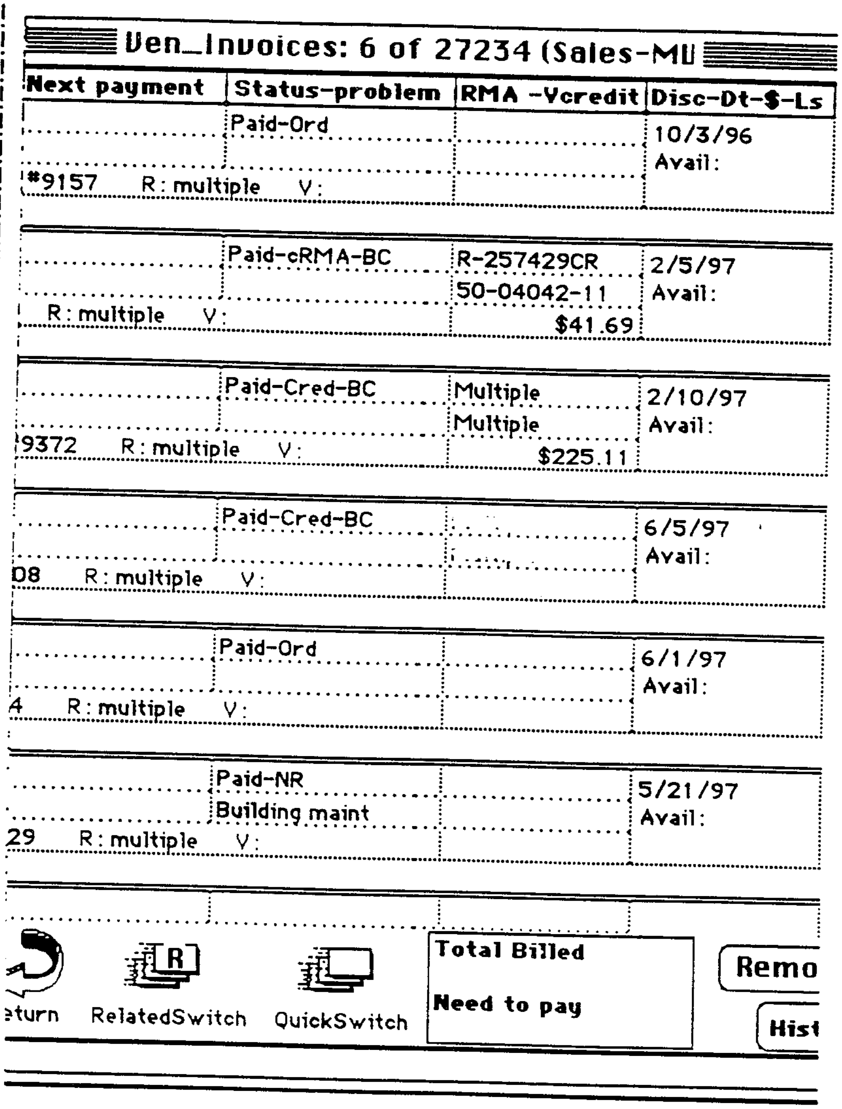
Fig. 89





Invoice -pay -ven/terms	In -En -Rv	MVS /qty - cost	PO -billed
1-5237969	10/3/96	●INVENTORY● 4	
TECHDATA	10/7/96	5,600.00	5,600.00
TECHDATA N30	11/26/96	P: 5,600.00 L: 5,600.00	12/5/96
	AP Posted		
50-01138-21	2/5/97	M97-24410 1	24410
MicroD	2/11/97	41.69	41.69
MicroD N30	2/7/97	P: 41.69 L: 41.69	3/5/97 #9375
	AP Posted		
236139711	2/10/97	Multiple 8	
DEUTSCHE-PLS	2/14/97	6,441.52	6,441.52
MicroD N30	2/11/97	P: 6,441.52 L: 6,441.52	3/5/97 #
	AP Posted	*need cr. $35.00*	
11-38282-11	6/5/97	Multiple 10	
Merisel	6/9/97	777.40	777.43
Merisel N30	6/6/97	P: 777.43 L: 777.43	7/25/97 #97
13-32564-11	6/1/97	M97-24919 1	24919
Merisel	6/9/97	360.24	360.24
Merisel N30	6/6/97	P: 360.24 L: 360.24	7/5/97 #965
1012	5/21/97	Expenses	
RX **LANIER ELEC**	6/10/97		900.00
LANIER ELEC N30	00/00/00	P: 900.00 L: 900.00	6/19/97 #96

FIG. 89A



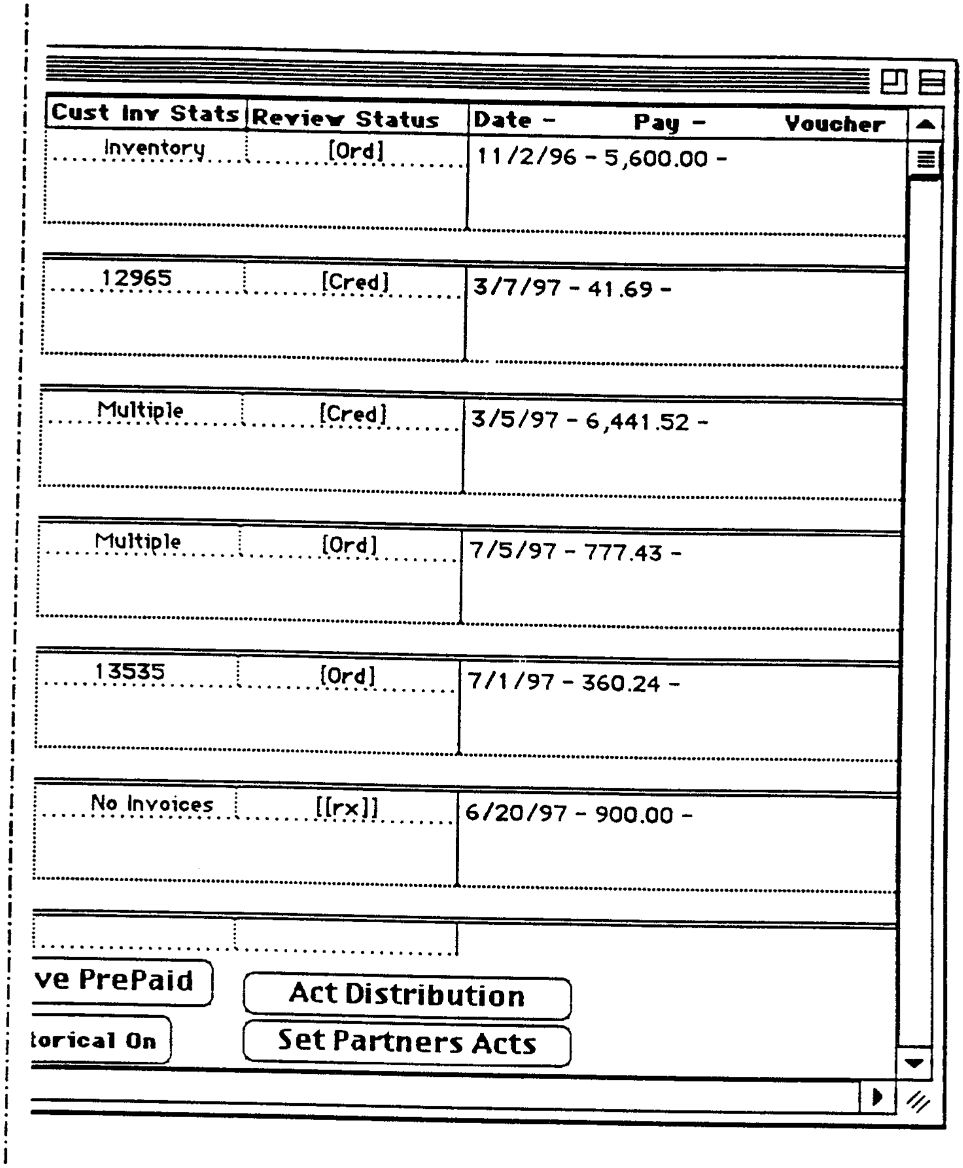
Ven_Invoices: 6 of 27234 (Sales-MU

Next payment	Status-problem	RMA -Vcredit	Disc-Dt-$-Ls
	Paid-Ord		10/3/96
			Avail:
#9157 R: multiple V:			
	Paid-cRMA-BC	R-257429CR	2/5/97
		50-04042-11	Avail:
R: multiple V:		$41.69	
	Paid-Cred-BC	Multiple	2/10/97
		Multiple	Avail:
9372 R: multiple V:		$225.11	
	Paid-Cred-BC		6/5/97
			Avail:
08 R: multiple V:			
	Paid-Ord		6/1/97
			Avail:
4 R: multiple V:			
	Paid-NR		5/21/97
	Building maint		Avail:
29 R: multiple V:			

Total Billed

Need to pay

FIG. 89B



Cust Inv Stats	Review Status	Date - Pay - Voucher
Inventory	[Ord]	11/2/96 - 5,600.00 -
12965	[Cred]	3/7/97 - 41.69 -
Multiple	[Cred]	3/5/97 - 6,441.52 -
Multiple	[Ord]	7/5/97 - 777.43 -
13535	[Ord]	7/1/97 - 360.24 -
No Invoices	[[rx]]	6/20/97 - 900.00 -

FIG. 89C

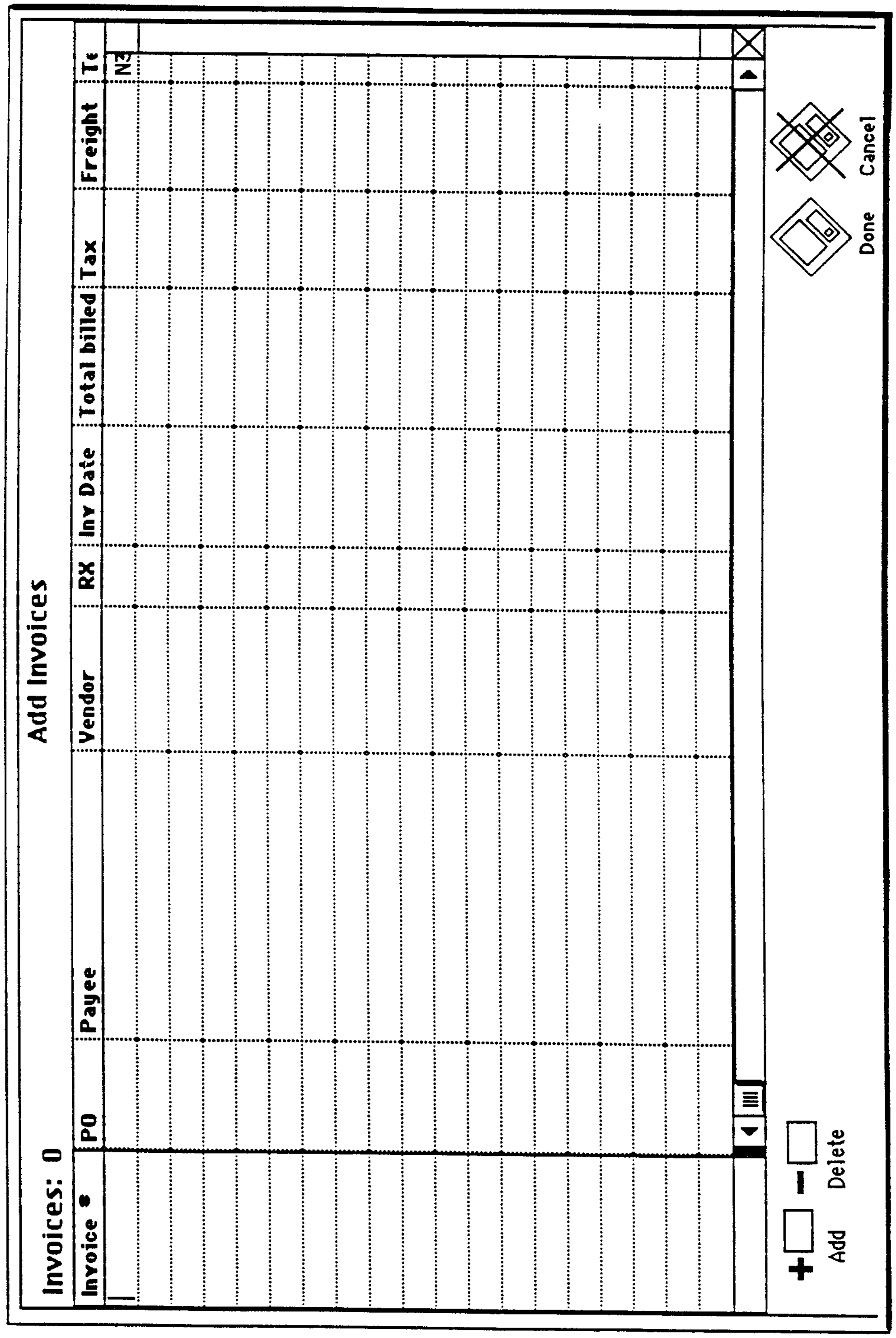
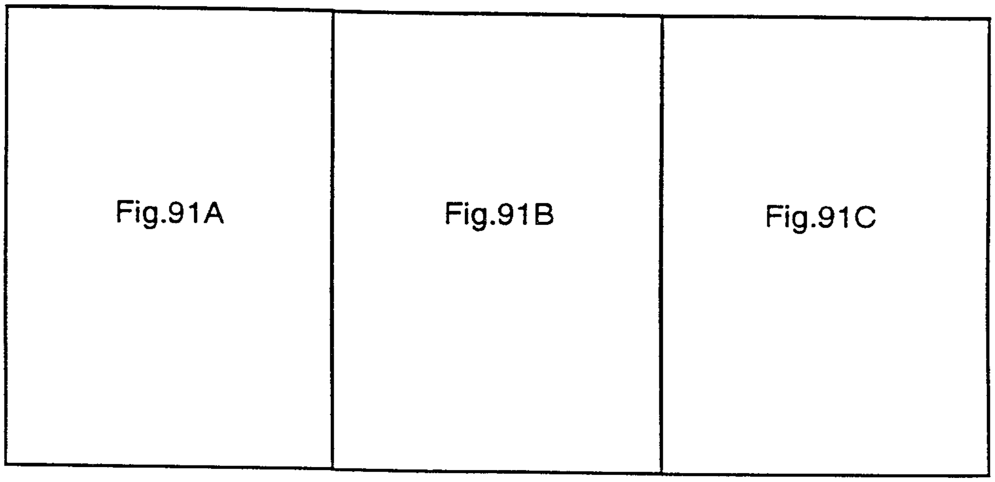
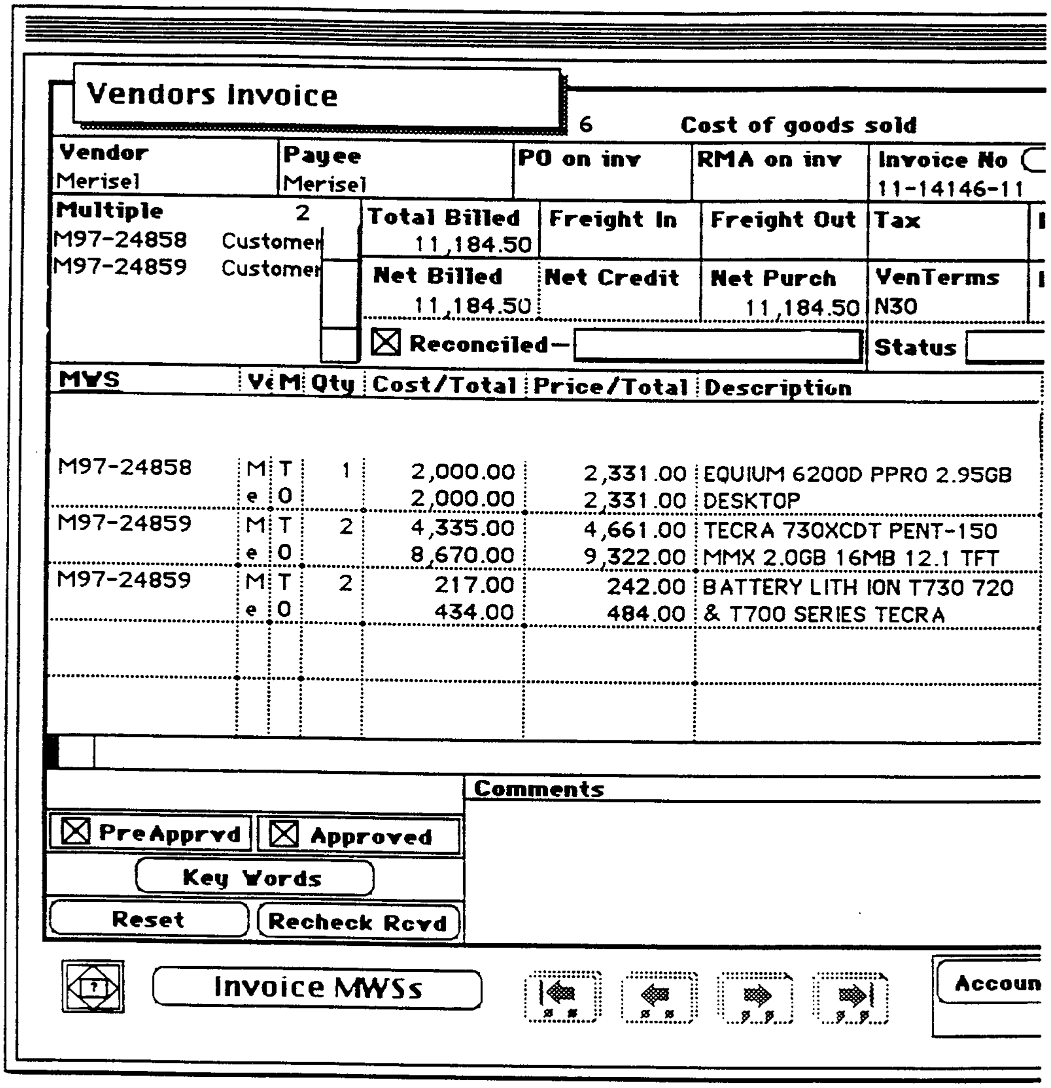

Add Invoices
Invoices: 0
Invoice #
PO
Payee
Vendor
RX
Inv Date
Total billed
Tax
Freight
Te
N3
Add
Delete
Done
Cancel

FIG. 90

Fig. 91





Vendors Invoice

6 Cost of goods sold

Vendor Merisel

Payee Merisel

PO on inv

RMA on inv

Invoice No 11-14146-11

Multiple 2

M97-24858 Customer

M97-24859 Customer

Total Billed 11,184.50

Freight In

Freight Out

Tax

Net Billed 11,184.50

Net Credit

Net Purch 11,184.50

VenTerms N30

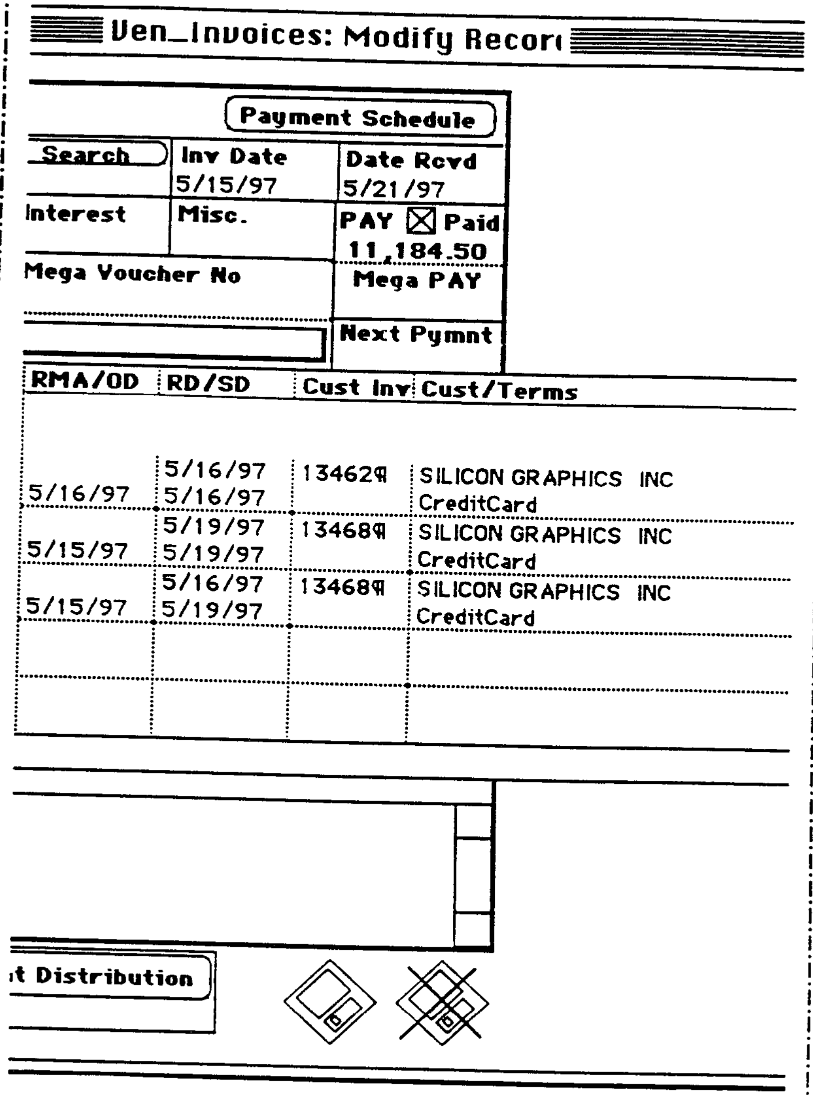
☒ Reconciled—

Status

MWS	Ve	M	Qty	Cost/Total	Price/Total	Description
M97-24858	M e	T O	1	2,000.00 2,000.00	2,331.00 2,331.00	EQUIUM 6200D PPRO 2.95GB DESKTOP
M97-24859	M e	T O	2	4,335.00 8,670.00	4,661.00 9,322.00	TECRA 730XCDT PENT-150 MMX 2.0GB 16MB 12.1 TFT
M97-24859	M e	T O	2	217.00 434.00	242.00 484.00	BATTERY LITH ION T730 720 & T700 SERIES TECRA

Comments

FIG. 91A



Inv Date 5/15/97

Date Rcvd 5/21/97

PAY ☒ Paid 11,184.50

RMA/OD	RD/SD	Cust Inv	Cust/Terms
5/16/97	5/16/97 5/16/97	13462¶	SILICON GRAPHICS INC CreditCard
5/15/97	5/19/97 5/19/97	13468¶	SILICON GRAPHICS INC CreditCard
5/15/97	5/16/97 5/19/97	13468¶	SILICON GRAPHICS INC CreditCard

FIG. 91B

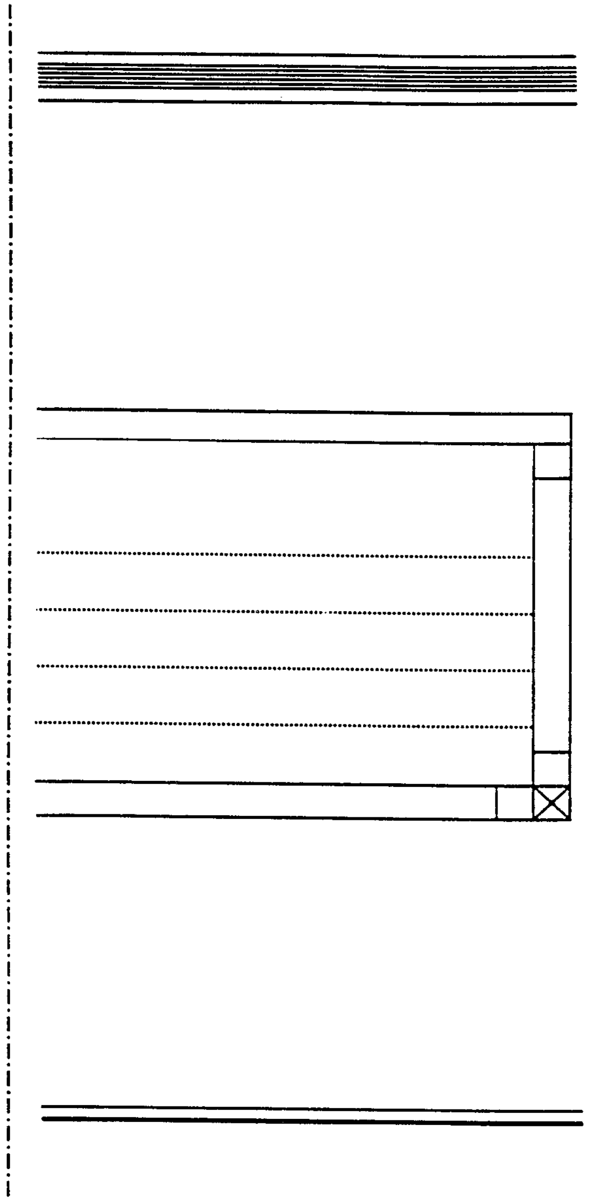
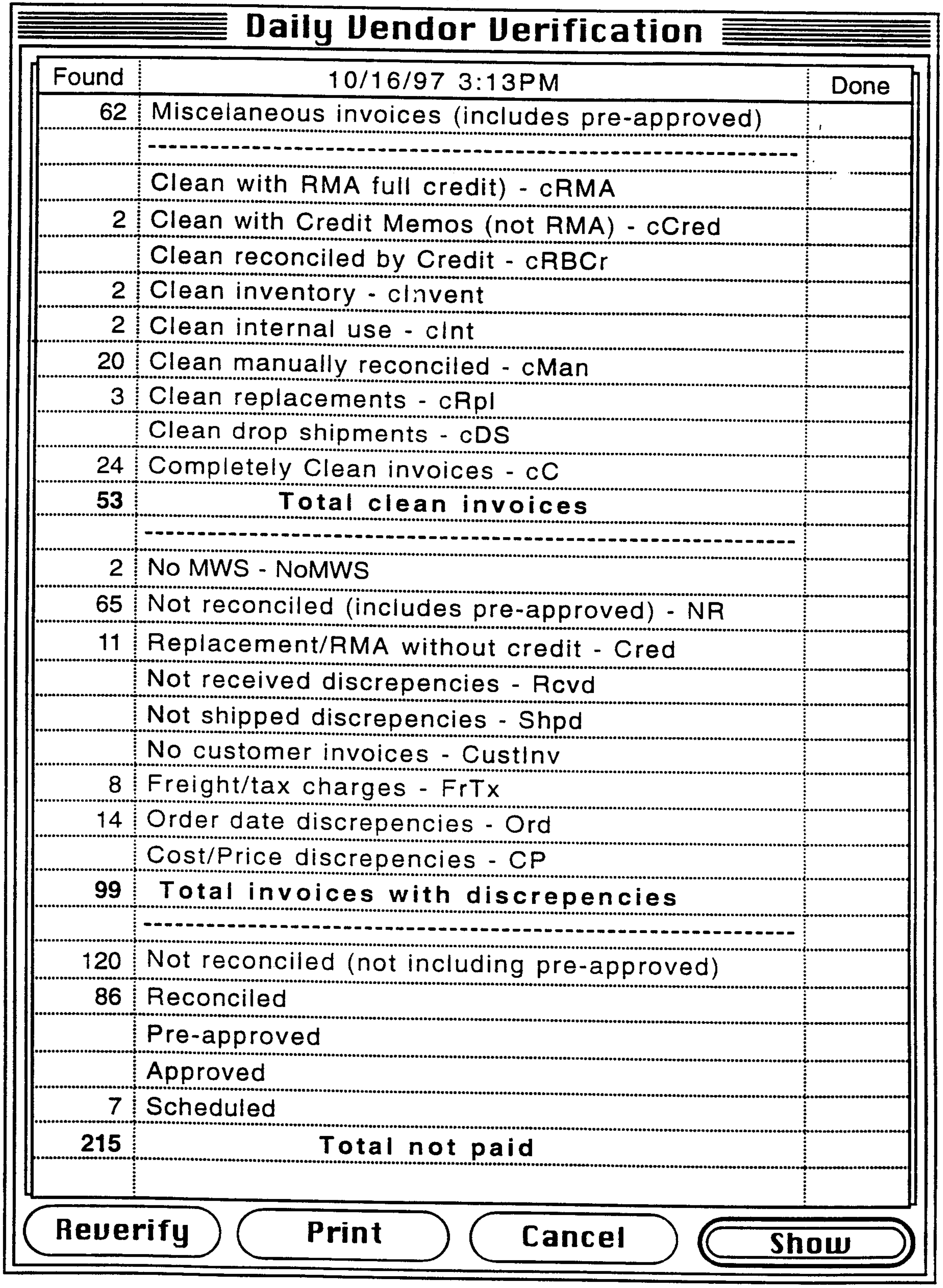


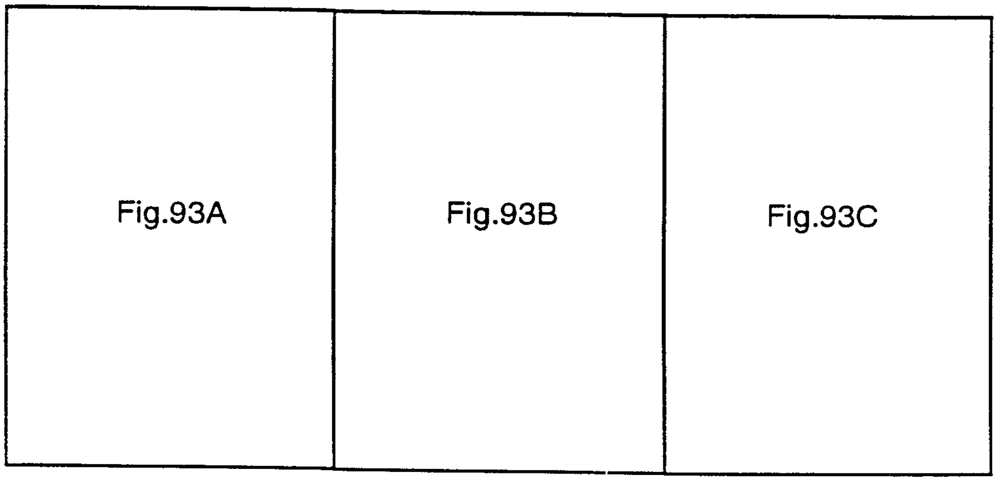
FIG. 91C

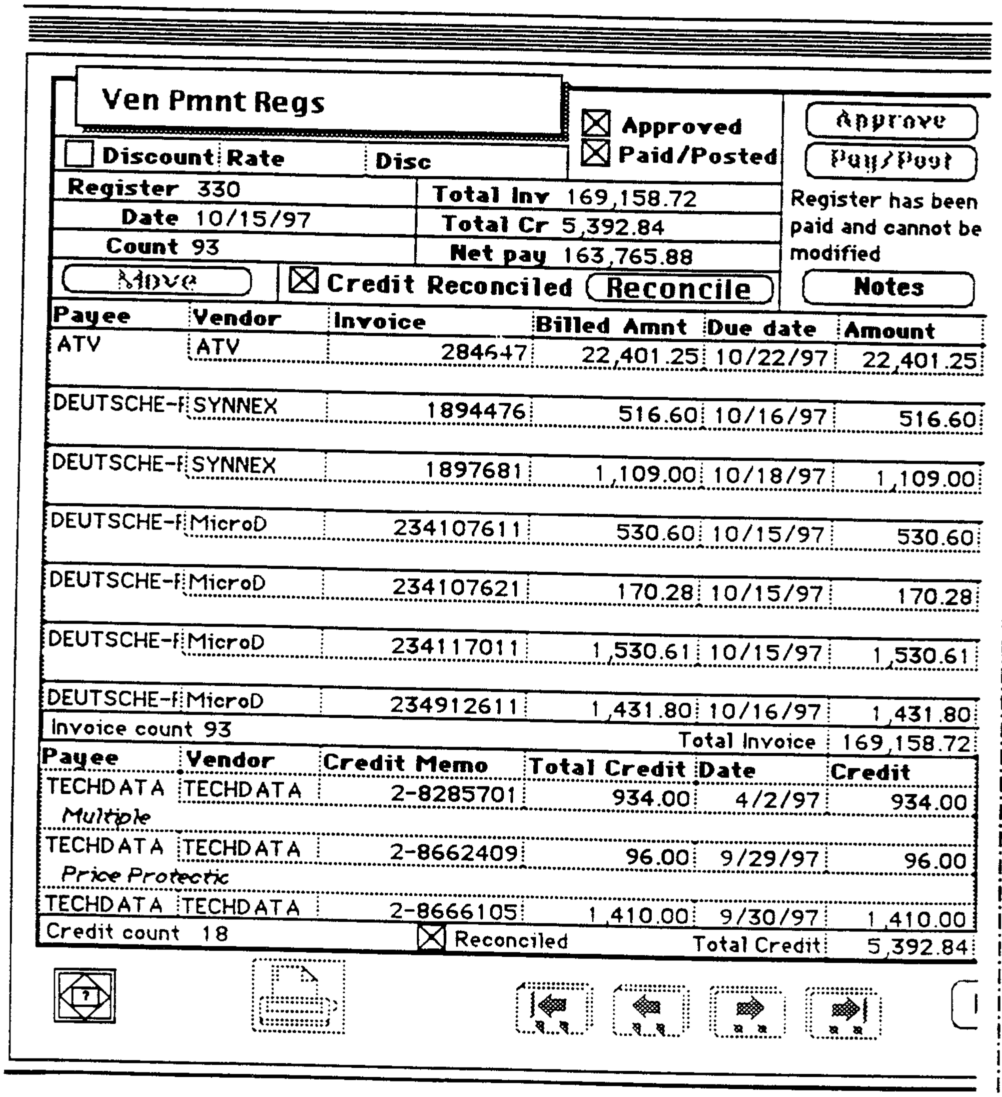


Found	10/16/97 3:13PM	Done
62	Miscelaneous invoices (includes pre-approved)	
	--	
	Clean with RMA full credit) - cRMA	
2	Clean with Credit Memos (not RMA) - cCred	
	Clean reconciled by Credit - cRBCr	
2	Clean inventory - cInvent	
2	Clean internal use - cInt	
20	Clean manually reconciled - cMan	
3	Clean replacements - cRpl	
	Clean drop shipments - cDS	
24	Completely Clean invoices - cC	
53	**Total clean invoices**	
	--	
2	No MWS - NoMWS	
65	Not reconciled (includes pre-approved) - NR	
11	Replacement/RMA without credit - Cred	
	Not received discrepencies - Rcvd	
	Not shipped discrepencies - Shpd	
	No customer invoices - CustInv	
8	Freight/tax charges - FrTx	
14	Order date discrepencies - Ord	
	Cost/Price discrepencies - CP	
99	**Total invoices with discrepencies**	
	--	
120	Not reconciled (not including pre-approved)	
86	Reconciled	
	Pre-approved	
	Approved	
7	Scheduled	
215	**Total not paid**	

FIG.92

Fig. 93





Ven Pmnt Regs

☐ Discount Rate Disc

☒ Approved

☒ Paid/Posted

Register 330

Date 10/15/97

Count 93

Total Inv 169,158.72

Total Cr 5,392.84

Net pay 163,765.88

Register has been paid and cannot be modified

☒ Credit Reconciled

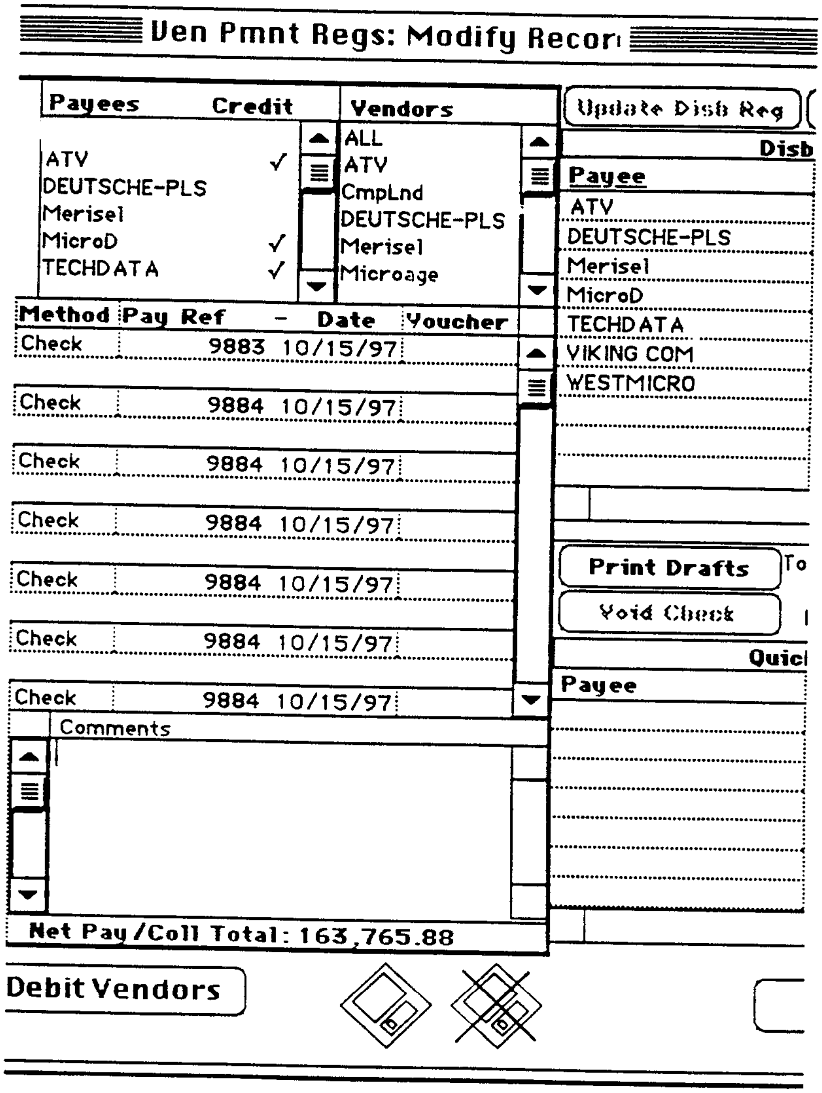
Payee	Vendor	Invoice	Billed Amnt	Due date	Amount
ATV	ATV	284647	22,401.25	10/22/97	22,401.25
DEUTSCHE-F	SYNNEX	1894476	516.60	10/16/97	516.60
DEUTSCHE-F	SYNNEX	1897681	1,109.00	10/18/97	1,109.00
DEUTSCHE-F	MicroD	234107611	530.60	10/15/97	530.60
DEUTSCHE-F	MicroD	234107621	170.28	10/15/97	170.28
DEUTSCHE-F	MicroD	234117011	1,530.61	10/15/97	1,530.61
DEUTSCHE-F	MicroD	234912611	1,431.80	10/16/97	1,431.80

Invoice count 93 Total Invoice 169,158.72

Payee	Vendor	Credit Memo	Total Credit	Date	Credit
TECHDATA *Multiple*	TECHDATA	2-8285701	934.00	4/2/97	934.00
TECHDATA *Price Protectic*	TECHDATA	2-8662409	96.00	9/29/97	96.00
TECHDATA	TECHDATA	2-8666105	1,410.00	9/30/97	1,410.00

Credit count 18 ☒ Reconciled Total Credit 5,392.84

FIG. 93A



Ven Pmnt Regs: Modify Recor

Payees	Credit
ATV	✓
DEUTSCHE-PLS	
Merisel	
MicroD	✓
TECHDATA	✓

Vendors
- ALL
- ATV
- CmpLnd
- DEUTSCHE-PLS
- Merisel
- Microage

Method	Pay Ref	Date	Voucher
Check	9883	10/15/97	
Check	9884	10/15/97	
Check	9884	10/15/97	
Check	9884	10/15/97	
Check	9884	10/15/97	
Check	9884	10/15/97	
Check	9884	10/15/97	

Comments

Net Pay/Coll Total: 163,765.88

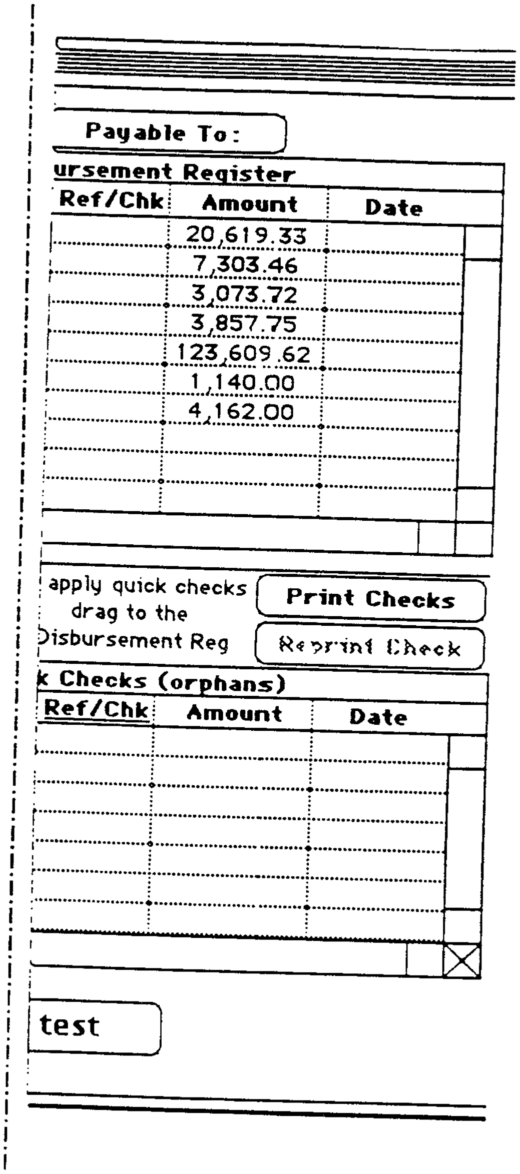
Disb

Payee
ATV
DEUTSCHE-PLS
Merisel
MicroD
TECHDATA
VIKING COM
WESTMICRO

Quicl

Payee

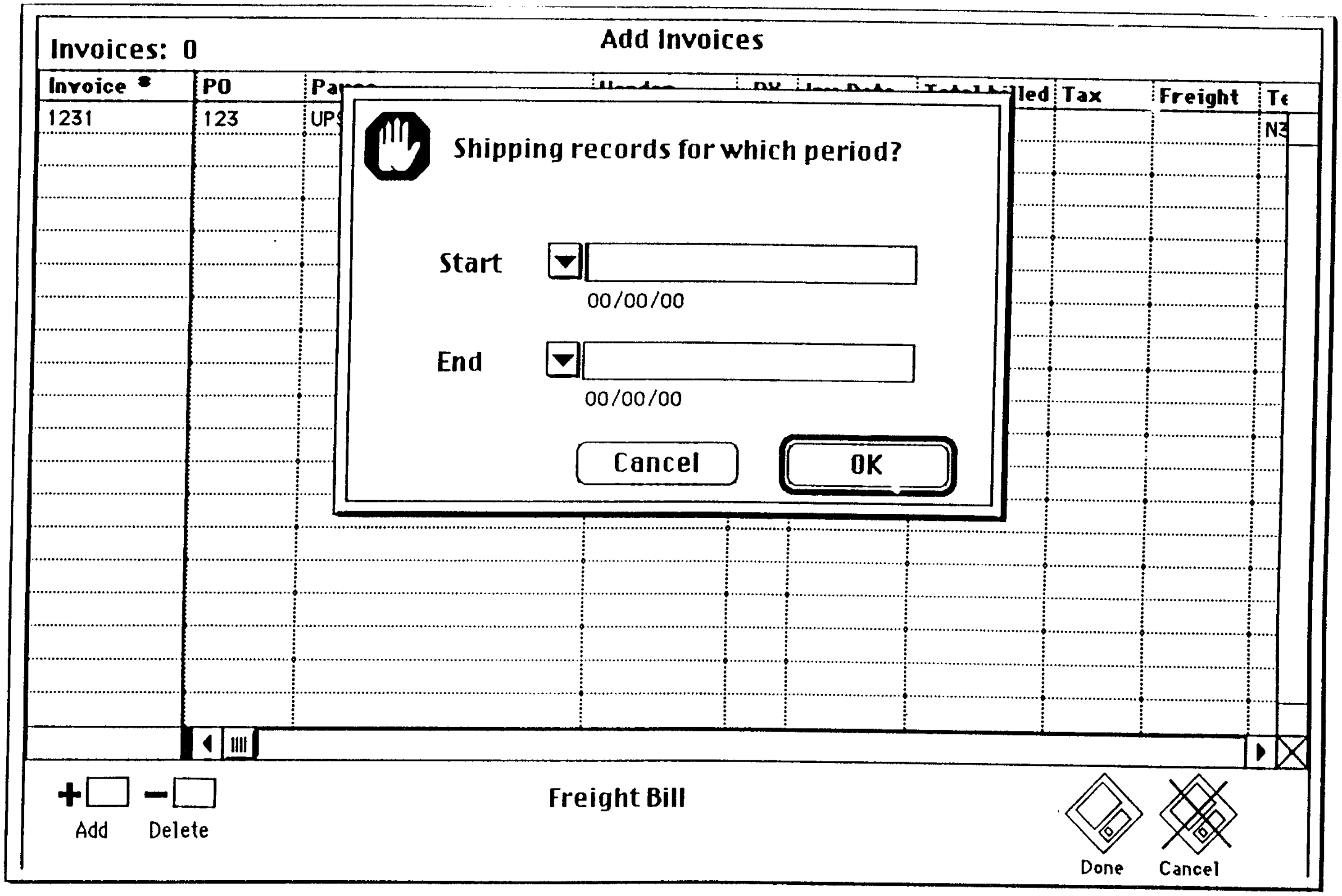
FIG. 93B



Ref/Chk	Amount	Date
	20,619.33	
	7,303.46	
	3,073.72	
	3,857.75	
	123,609.62	
	1,140.00	
	4,162.00	

Ref/Chk	Amount	Date

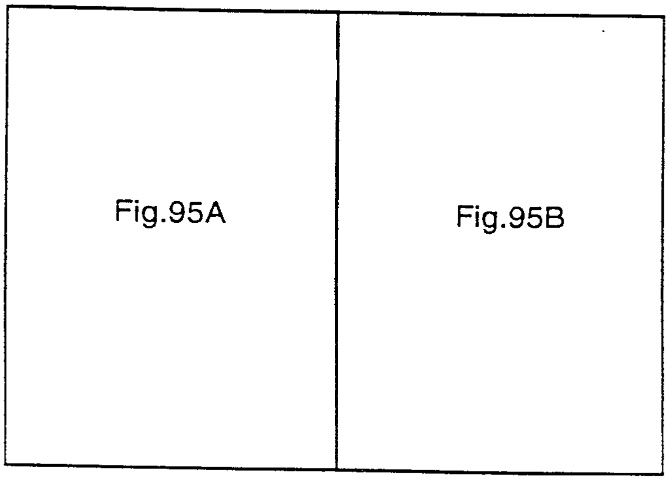
FIG. 93C

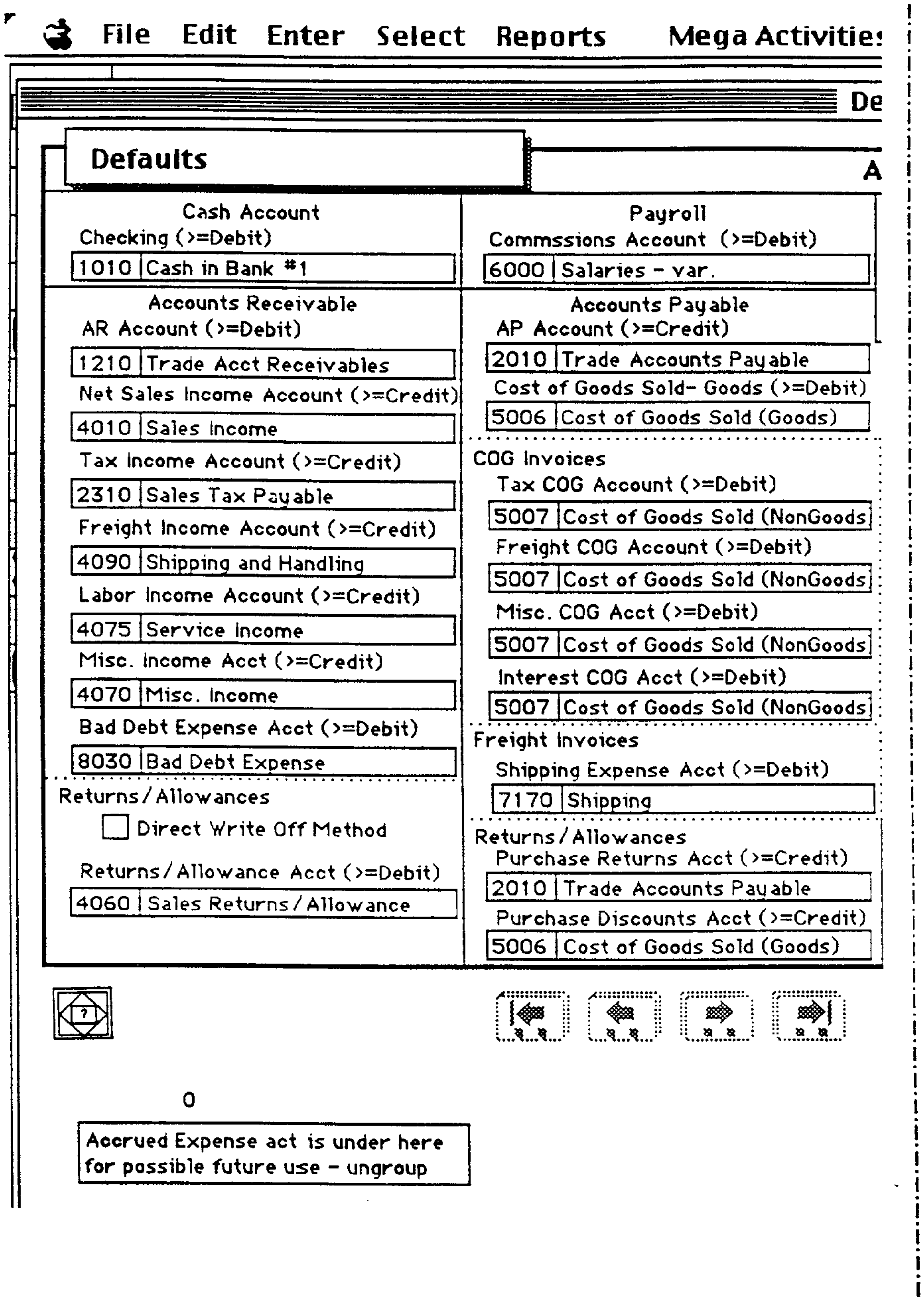


Shipping records for which period?

FIG. 94

Fig. 95





Defaults

Cash Account
Checking (>=Debit)
1010 Cash in Bank #1

Accounts Receivable
AR Account (>=Debit)
1210 Trade Acct Receivables
Net Sales Income Account (>=Credit)
4010 Sales Income
Tax Income Account (>=Credit)
2310 Sales Tax Payable
Freight Income Account (>=Credit)
4090 Shipping and Handling
Labor Income Account (>=Credit)
4075 Service Income
Misc. Income Acct (>=Credit)
4070 Misc. Income
Bad Debt Expense Acct (>=Debit)
8030 Bad Debt Expense

Returns/Allowances
☐ Direct Write Off Method
Returns/Allowance Acct (>=Debit)
4060 Sales Returns/Allowance

Payroll
Commssions Account (>=Debit)
6000 Salaries - var.

Accounts Payable
AP Account (>=Credit)
2010 Trade Accounts Payable
Cost of Goods Sold- Goods (>=Debit)
5006 Cost of Goods Sold (Goods)

COG Invoices
Tax COG Account (>=Debit)
5007 Cost of Goods Sold (NonGoods
Freight COG Account (>=Debit)
5007 Cost of Goods Sold (NonGoods
Misc. COG Acct (>=Debit)
5007 Cost of Goods Sold (NonGoods
Interest COG Acct (>=Debit)
5007 Cost of Goods Sold (NonGoods

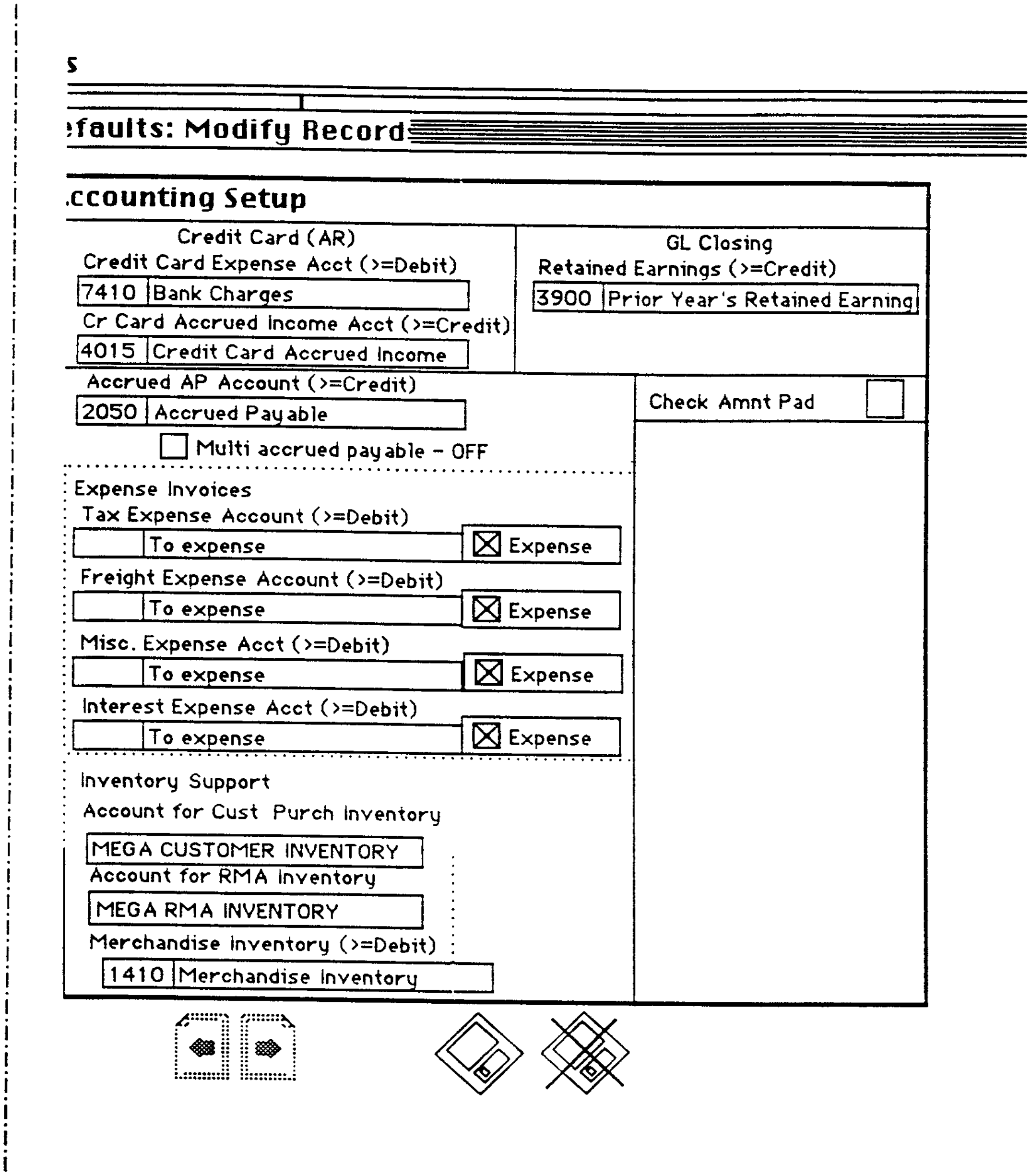
Freight Invoices
Shipping Expense Acct (>=Debit)
7170 Shipping

Returns/Allowances
Purchase Returns Acct (>=Credit)
2010 Trade Accounts Payable
Purchase Discounts Acct (>=Credit)
5006 Cost of Goods Sold (Goods)

0

Accrued Expense act is under here for possible future use - ungroup

FIG. 95A



s

faults: Modify Record

ccounting Setup

Credit Card (AR)

Credit Card Expense Acct (>=Debit)

7410 Bank Charges

Cr Card Accrued Income Acct (>=Credit)

4015 Credit Card Accrued Income

GL Closing

Retained Earnings (>=Credit)

3900 Prior Year's Retained Earning

Accrued AP Account (>=Credit)

2050 Accrued Payable

☐ Multi accrued payable - OFF

Check Amnt Pad ☐

Expense Invoices

Tax Expense Account (>=Debit)

To expense ☒ Expense

Freight Expense Account (>=Debit)

To expense ☒ Expense

Misc. Expense Acct (>=Debit)

To expense ☒ Expense

Interest Expense Acct (>=Debit)

To expense ☒ Expense

Inventory Support

Account for Cust Purch Inventory

MEGA CUSTOMER INVENTORY

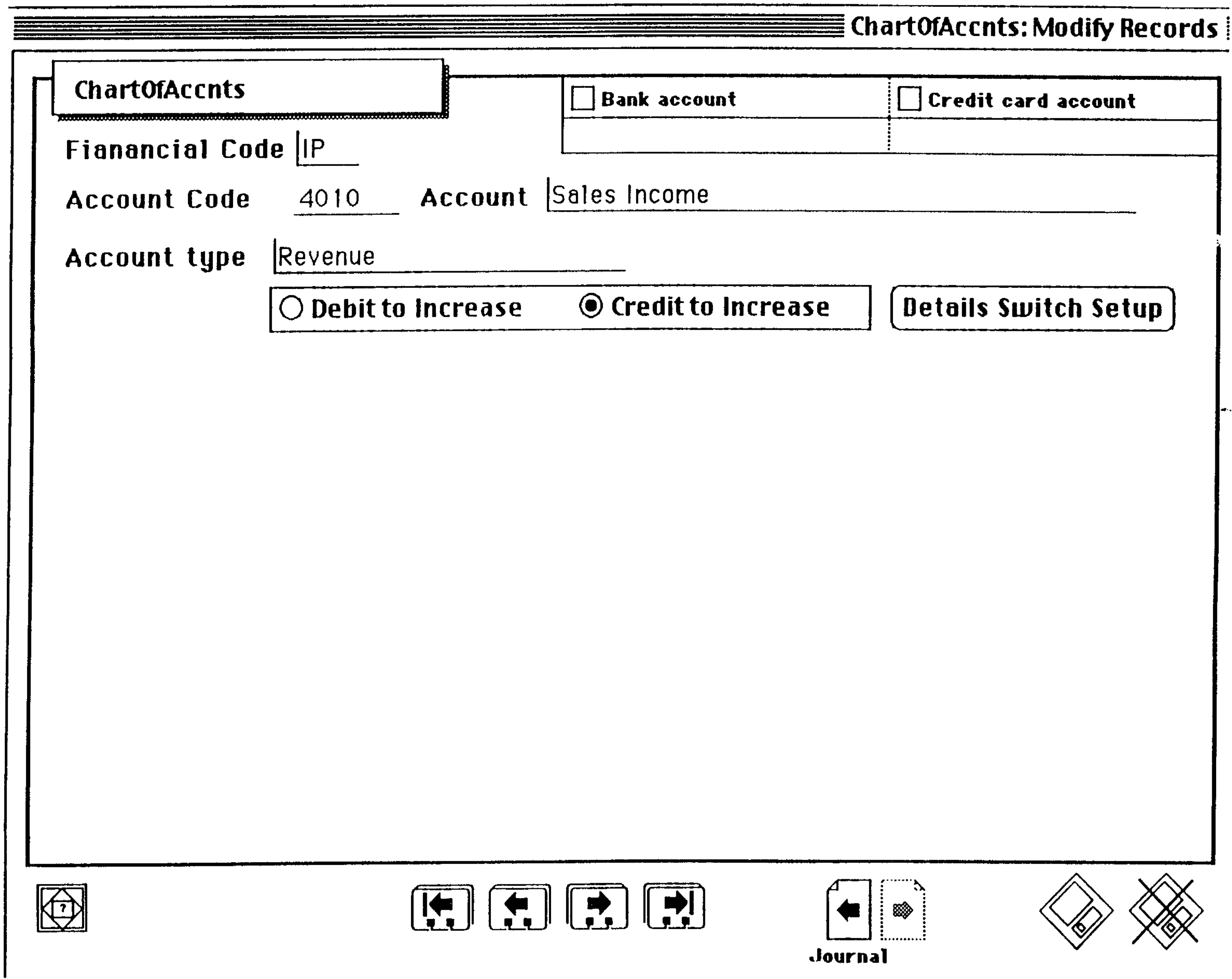
Account for RMA Inventory

MEGA RMA INVENTORY

Merchandise Inventory (>=Debit)

1410 Merchandise Inventory

FIG. 95B



☐ Bank account ☐ Credit card account

Fianancial Code IP

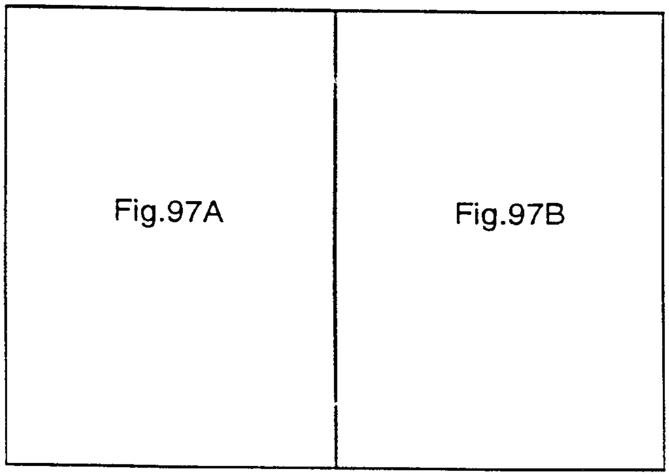
Account Code 4010 Account Sales Income

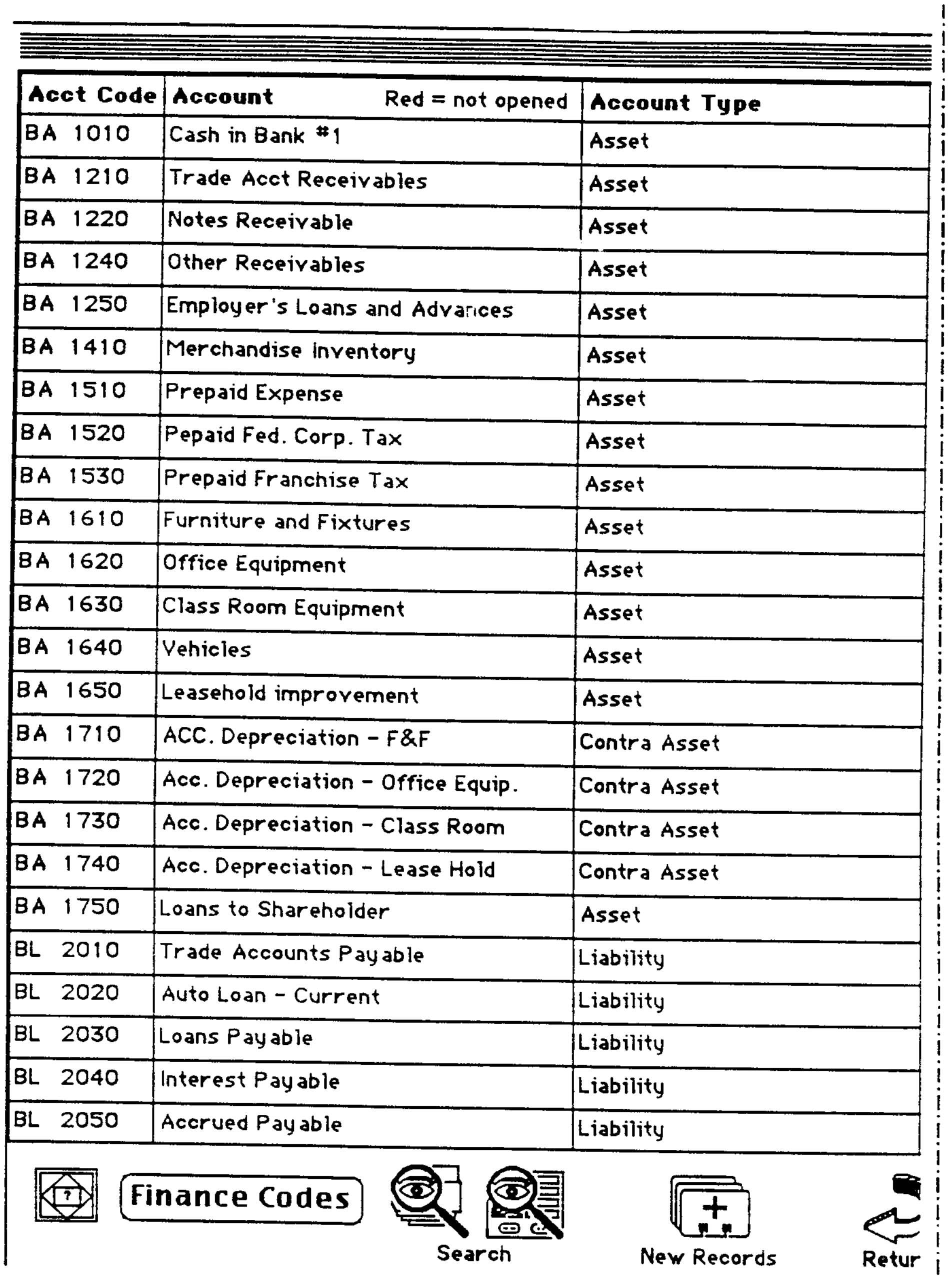
Account type Revenue

○ Debit to Increase ● Credit to Increase

FIG. 96

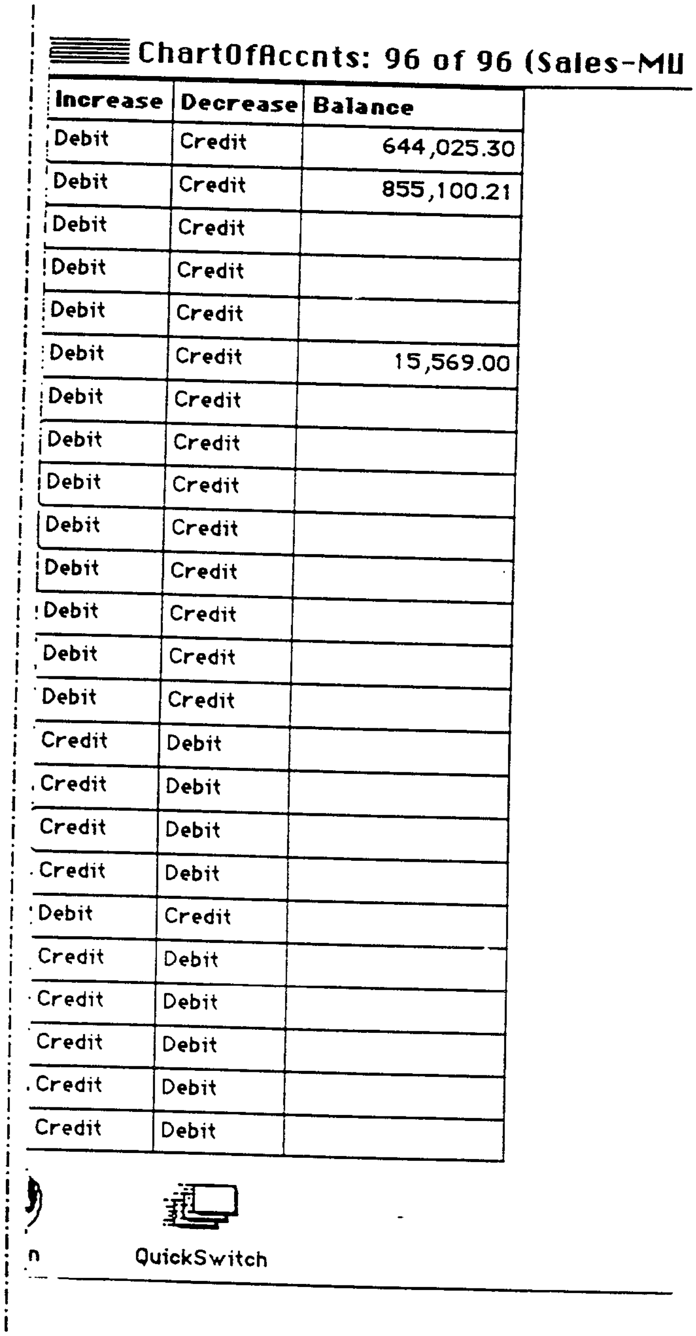
Fig. 97





Acct Code	Account Red = not opened	Account Type
BA 1010	Cash in Bank #1	Asset
BA 1210	Trade Acct Receivables	Asset
BA 1220	Notes Receivable	Asset
BA 1240	Other Receivables	Asset
BA 1250	Employer's Loans and Advances	Asset
BA 1410	Merchandise inventory	Asset
BA 1510	Prepaid Expense	Asset
BA 1520	Pepaid Fed. Corp. Tax	Asset
BA 1530	Prepaid Franchise Tax	Asset
BA 1610	Furniture and Fixtures	Asset
BA 1620	Office Equipment	Asset
BA 1630	Class Room Equipment	Asset
BA 1640	Vehicles	Asset
BA 1650	Leasehold improvement	Asset
BA 1710	ACC. Depreciation - F&F	Contra Asset
BA 1720	Acc. Depreciation - Office Equip.	Contra Asset
BA 1730	Acc. Depreciation - Class Room	Contra Asset
BA 1740	Acc. Depreciation - Lease Hold	Contra Asset
BA 1750	Loans to Shareholder	Asset
BL 2010	Trade Accounts Payable	Liability
BL 2020	Auto Loan - Current	Liability
BL 2030	Loans Payable	Liability
BL 2040	Interest Payable	Liability
BL 2050	Accrued Payable	Liability

FIG. 97A

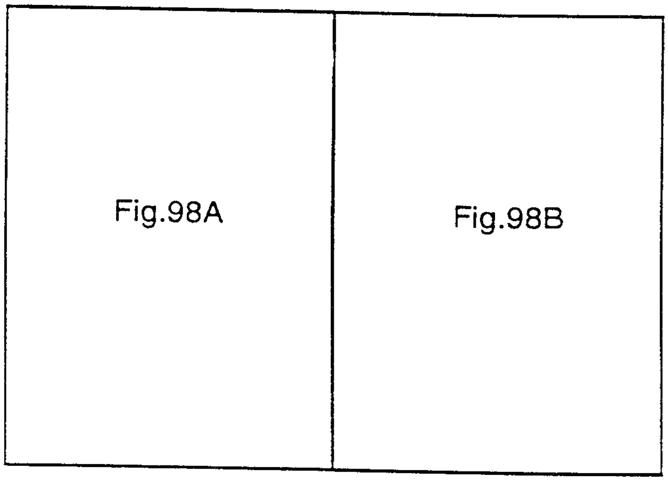


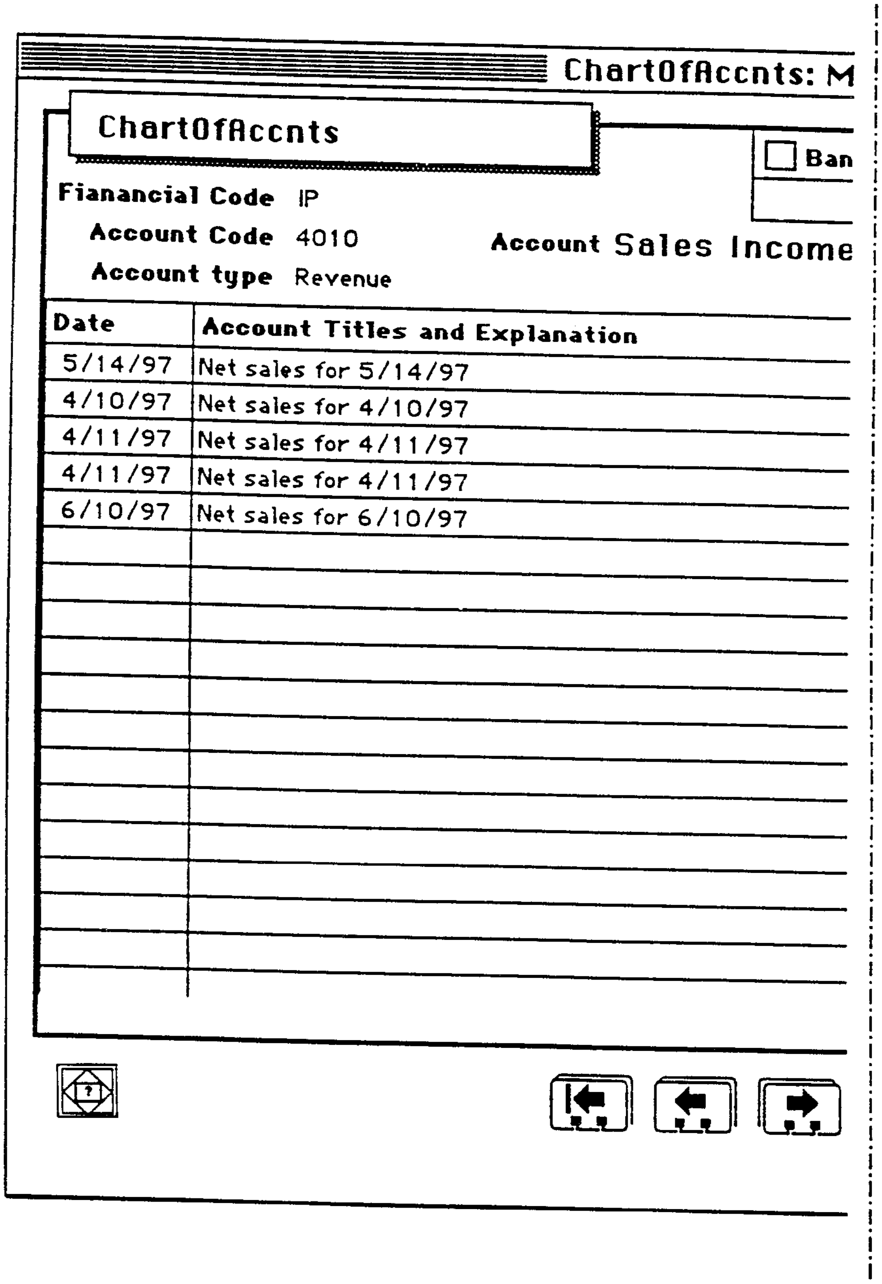
ChartOfAccnts: 96 of 96 (Sales-MU

Increase	Decrease	Balance
Debit	Credit	644,025.30
Debit	Credit	855,100.21
Debit	Credit	
Debit	Credit	
Debit	Credit	
Debit	Credit	15,569.00
Debit	Credit	
Debit	Credit	
Debit	Credit	
Debit	Credit	
Debit	Credit	
Debit	Credit	
Debit	Credit	
Debit	Credit	
Credit	Debit	
Credit	Debit	
Credit	Debit	
Credit	Debit	
Debit	Credit	
Credit	Debit	
Credit	Debit	
Credit	Debit	
Credit	Debit	
Credit	Debit	

FIG. 97B

Fig. 98

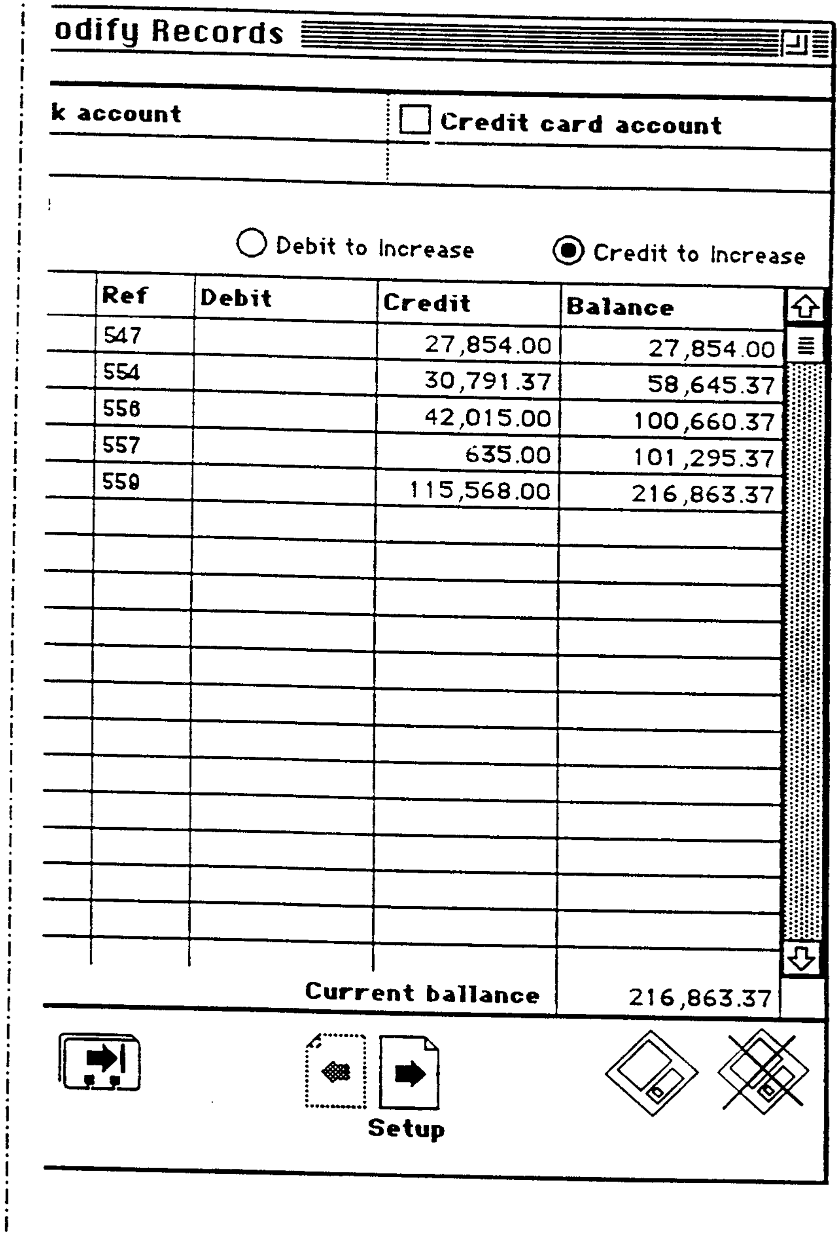




Fianancial Code IP
Account Code 4010 **Account** Sales Income
Account type Revenue

Date	Account Titles and Explanation
5/14/97	Net sales for 5/14/97
4/10/97	Net sales for 4/10/97
4/11/97	Net sales for 4/11/97
4/11/97	Net sales for 4/11/97
6/10/97	Net sales for 6/10/97

FIG. 98A



odify Records

k account

☐ Credit card account

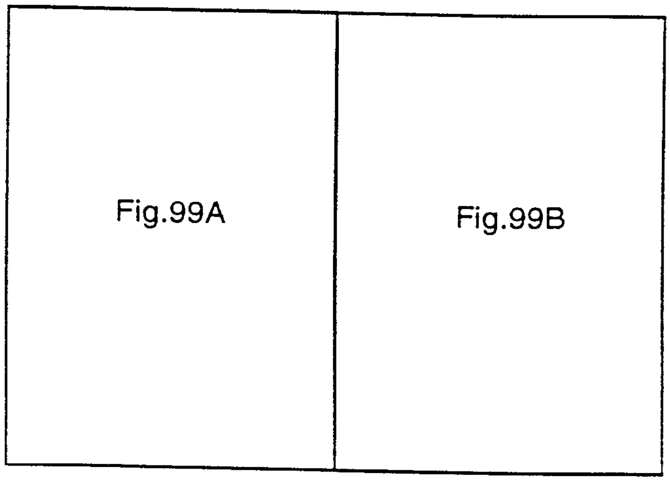
○ Debit to Increase ● Credit to Increase

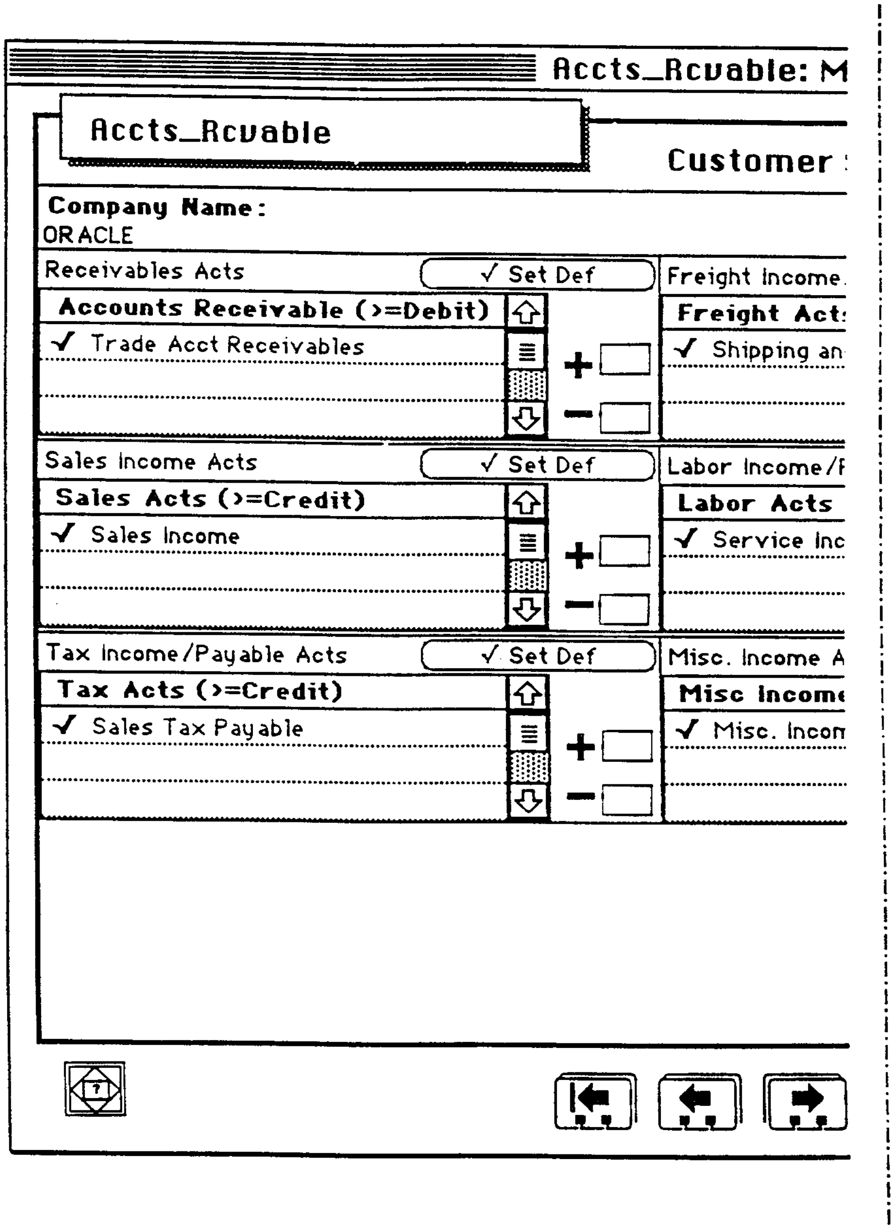
	Ref	Debit	Credit	Balance
	547		27,854.00	27,854.00
	554		30,791.37	58,645.37
	556		42,015.00	100,660.37
	557		635.00	101,295.37
	559		115,568.00	216,863.37

Current ballance 216,863.37

FIG. 98B

Fig. 99





Accts_Rcvable: M

Accts_Rcvable

Customer :

Company Name:
ORACLE

Receivables Acts ✓ Set Def

Accounts Receivable (>=Debit)
✓ Trade Acct Receivables

Freight Income.

Freight Act:
✓ Shipping an

Sales Income Acts ✓ Set Def

Sales Acts (>=Credit)
✓ Sales Income

Labor Income/F

Labor Acts
✓ Service Inc

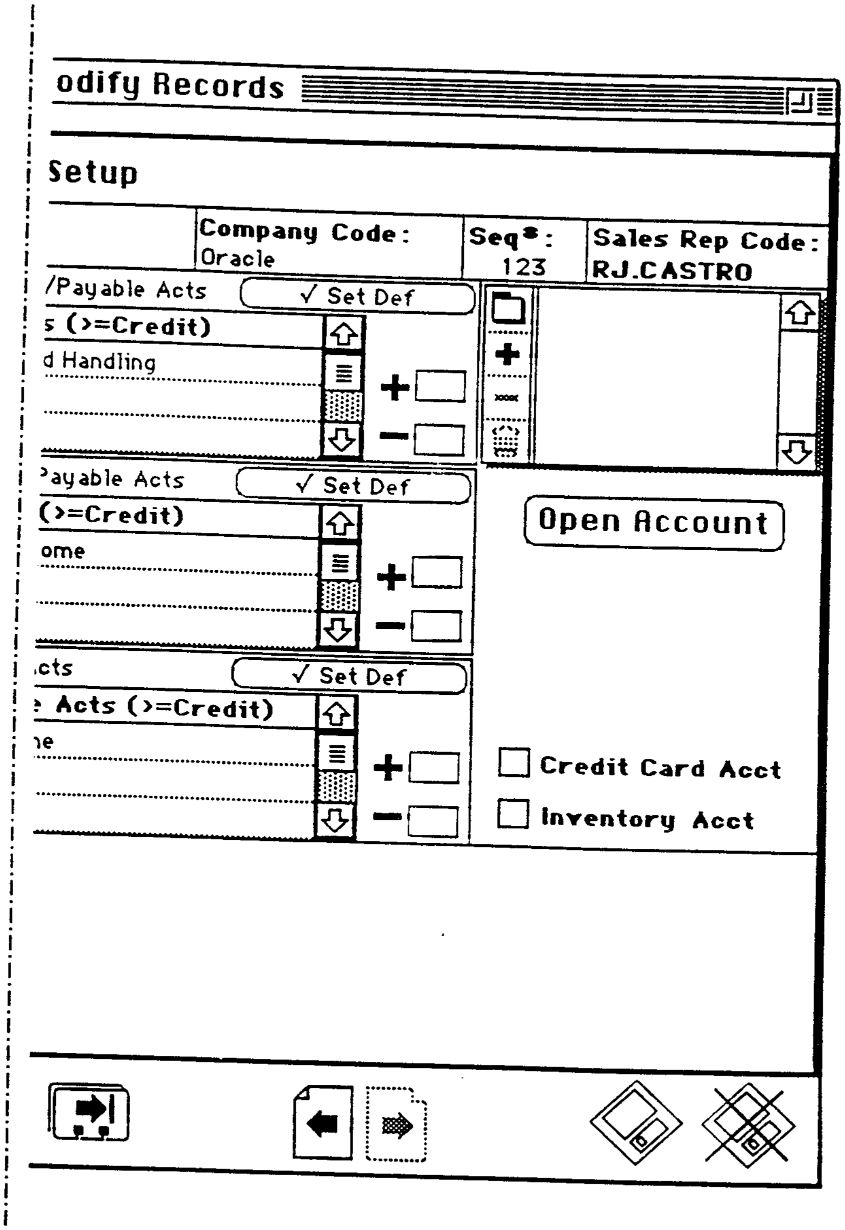
Tax Income/Payable Acts ✓ Set Def

Tax Acts (>=Credit)
✓ Sales Tax Payable

Misc. Income A

Misc Income
✓ Misc. Incom

FIG. 99A


odify Records

Setup

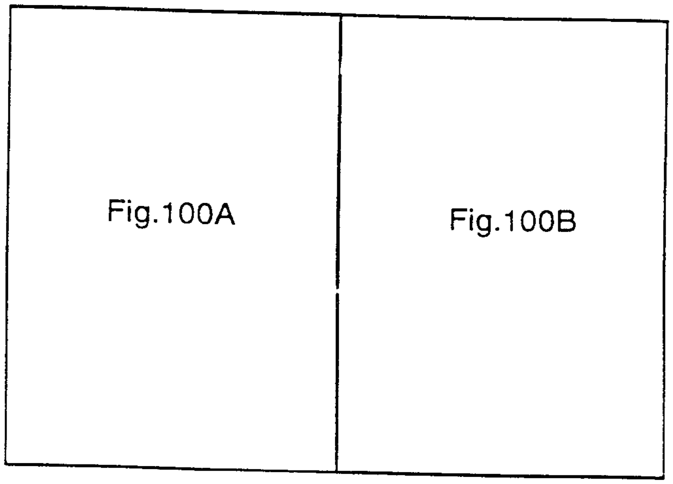
Company Code: Oracle

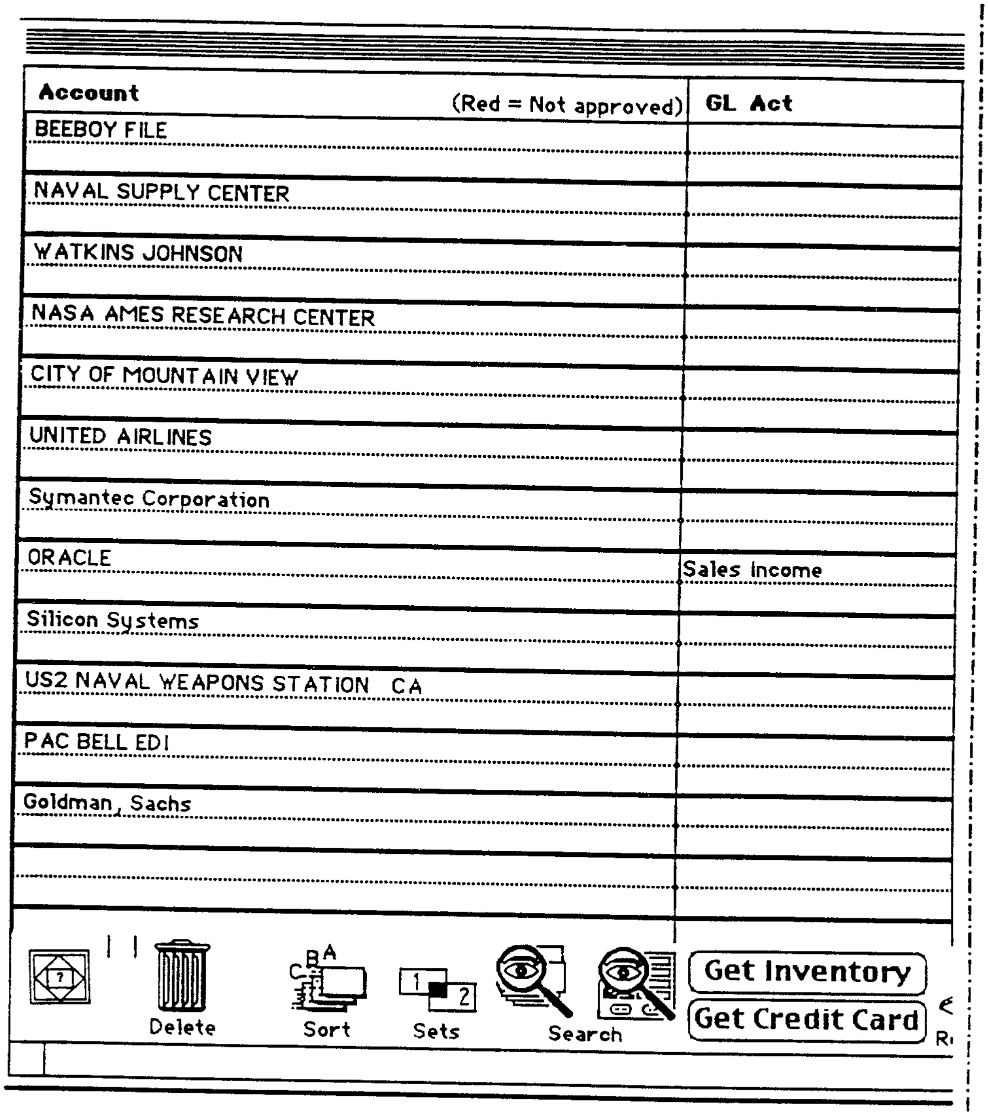
Seq*: 123

Sales Rep Code: RJ.CASTRO

FIG. 99B

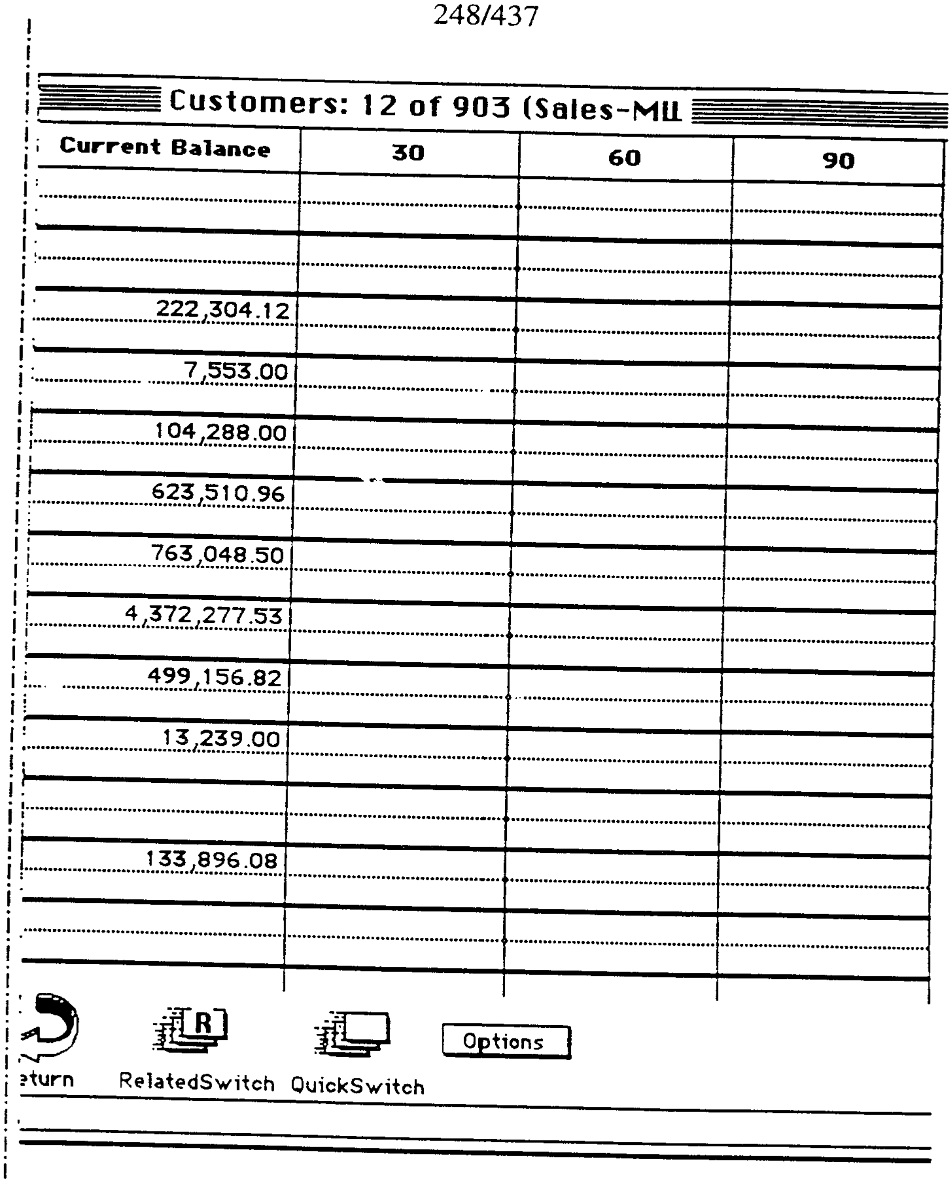
Fig. 100





Account (Red = Not approved)	GL Act
BEEBOY FILE	
NAVAL SUPPLY CENTER	
WATKINS JOHNSON	
NASA AMES RESEARCH CENTER	
CITY OF MOUNTAIN VIEW	
UNITED AIRLINES	
Symantec Corporation	
ORACLE	Sales Income
Silicon Systems	
US2 NAVAL WEAPONS STATION CA	
PAC BELL EDI	
Goldman, Sachs	

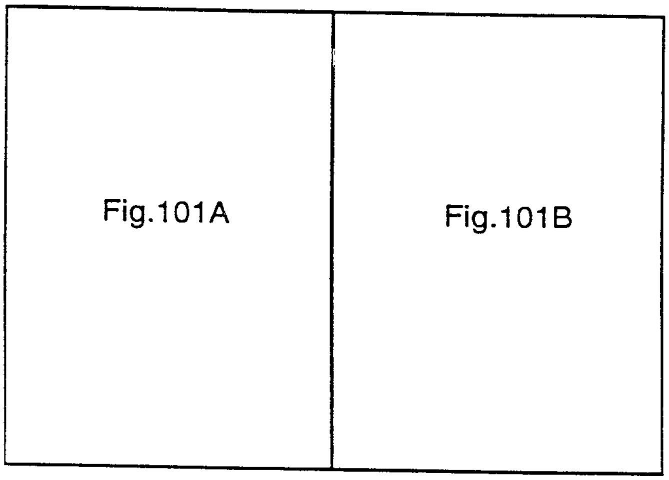
FIG. 100A

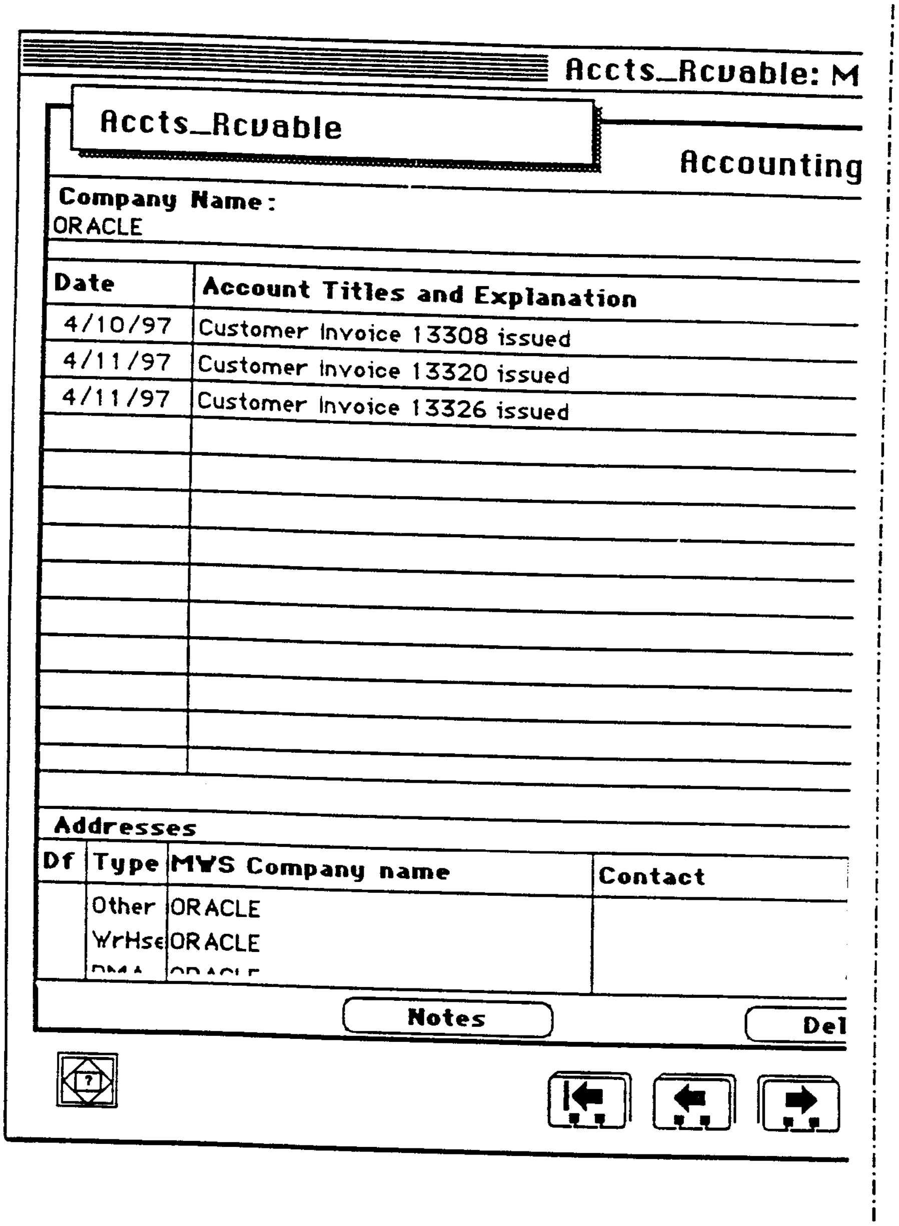


Current Balance	30	60	90
222,304.12			
7,553.00			
104,288.00			
623,510.96			
763,048.50			
4,372,277.53			
499,156.82			
13,239.00			
133,896.08			

FIG. 100B

Fig. 101





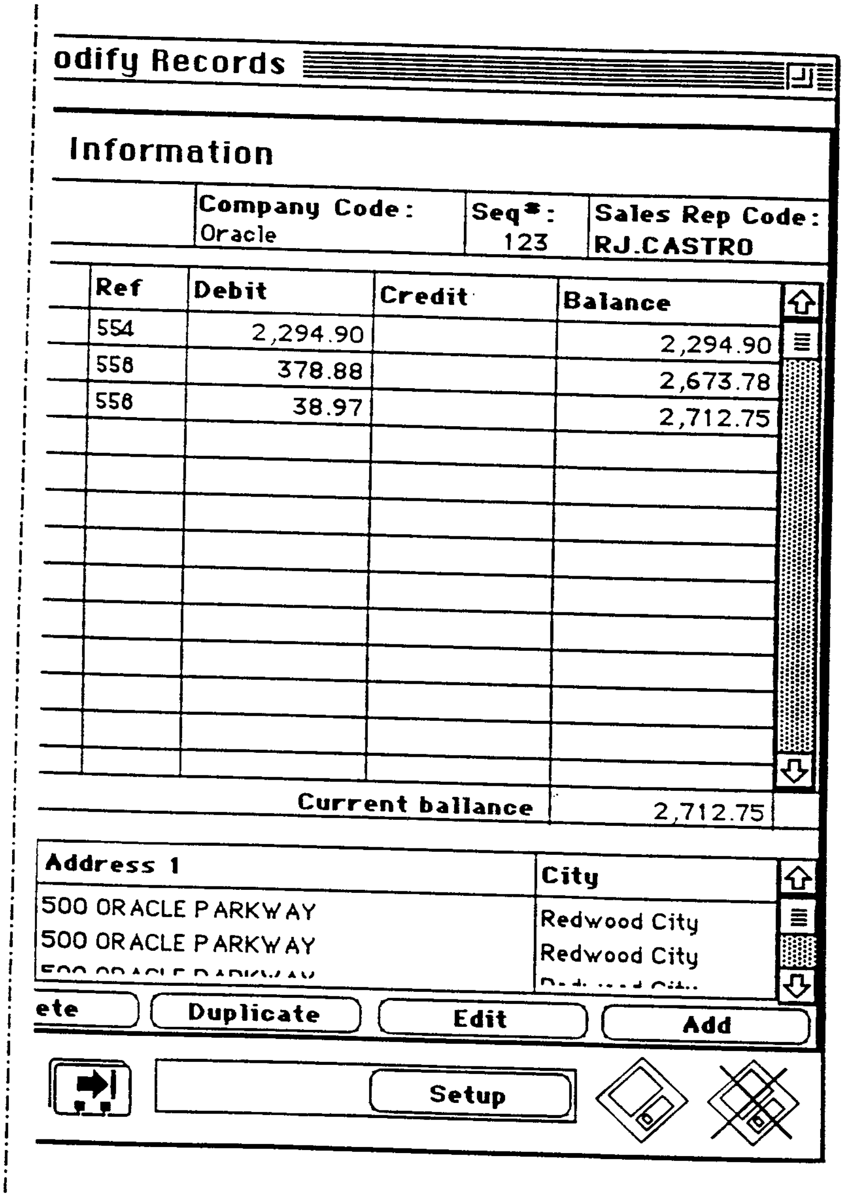
Company Name:
ORACLE

Date	Account Titles and Explanation
4/10/97	Customer Invoice 13308 issued
4/11/97	Customer Invoice 13320 issued
4/11/97	Customer Invoice 13326 issued

Addresses

Df	Type	MVS Company name	Contact
	Other	ORACLE	
	WrHs	ORACLE	

FIG. 101A



Company Code: Oracle
Seq*: 123
Sales Rep Code: RJ.CASTRO

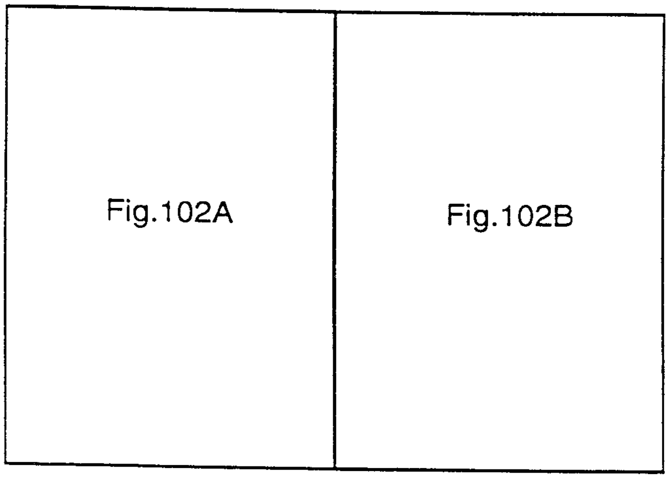
Ref	Debit	Credit	Balance
554	2,294.90		2,294.90
558	378.88		2,673.78
558	38.97		2,712.75

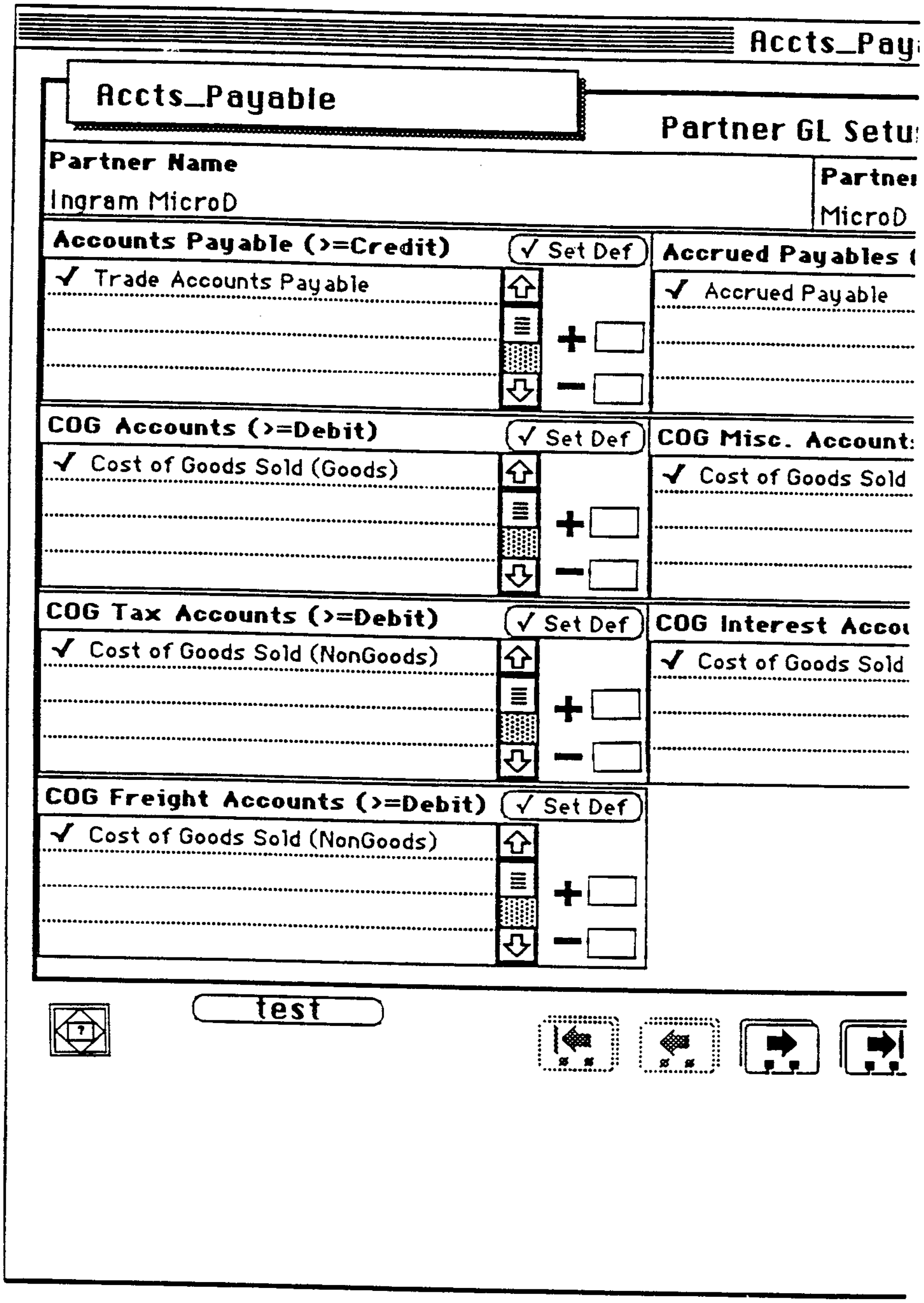
Current ballance 2,712.75

Address 1	City
500 ORACLE PARKWAY	Redwood City
500 ORACLE PARKWAY	Redwood City

FIG. 101B

Fig. 102





Accts_Pay

Accts_Payable

Partner GL Setu

Partner Name
Ingram MicroD

Partne
MicroD

Accounts Payable (>=Credit) ✓ Set Def
✓ Trade Accounts Payable

Accrued Payables (
✓ Accrued Payable

COG Accounts (>=Debit) ✓ Set Def
✓ Cost of Goods Sold (Goods)

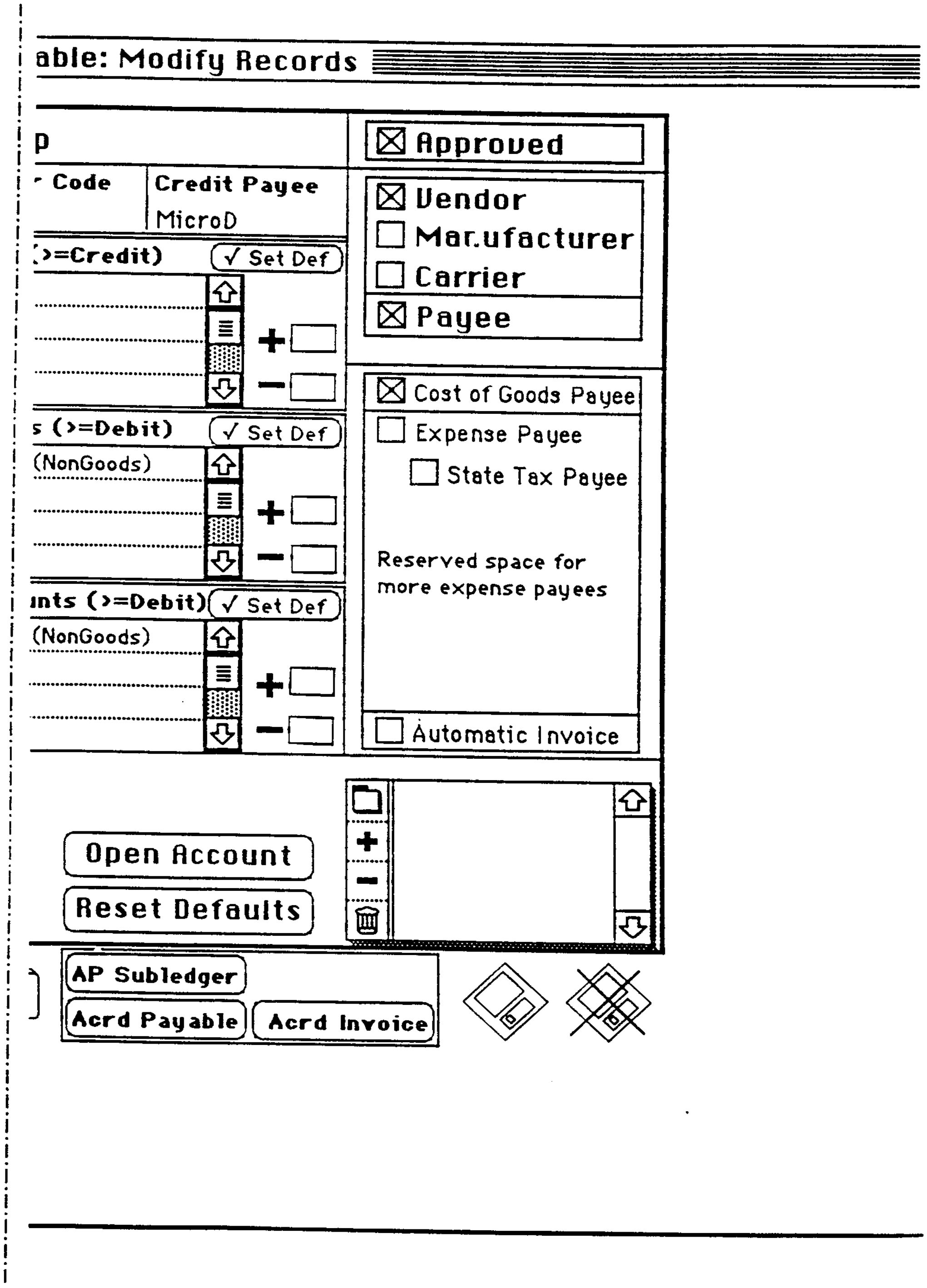
COG Misc. Account
✓ Cost of Goods Sold

COG Tax Accounts (>=Debit) ✓ Set Def
✓ Cost of Goods Sold (NonGoods)

COG Interest Acco
✓ Cost of Goods Sold

COG Freight Accounts (>=Debit) ✓ Set Def
✓ Cost of Goods Sold (NonGoods)

FIG. 102A



able: Modify Records

p

☒ Approved

☒ Vendor
☐ Manufacturer
☐ Carrier
☒ Payee

Credit Payee: MicroD

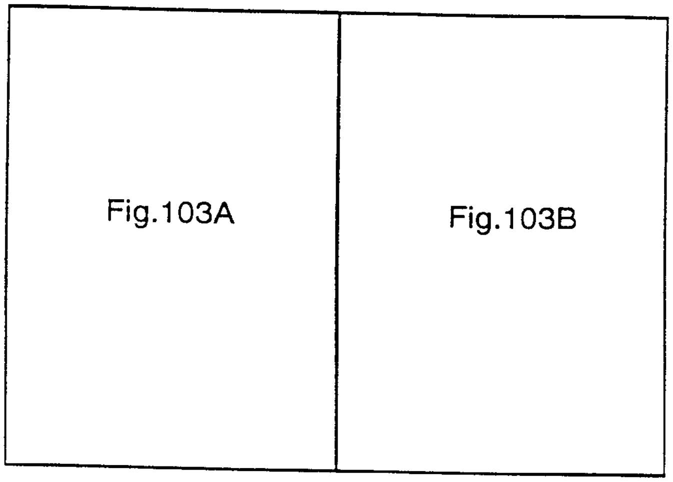
☒ Cost of Goods Payee
☐ Expense Payee
☐ State Tax Payee

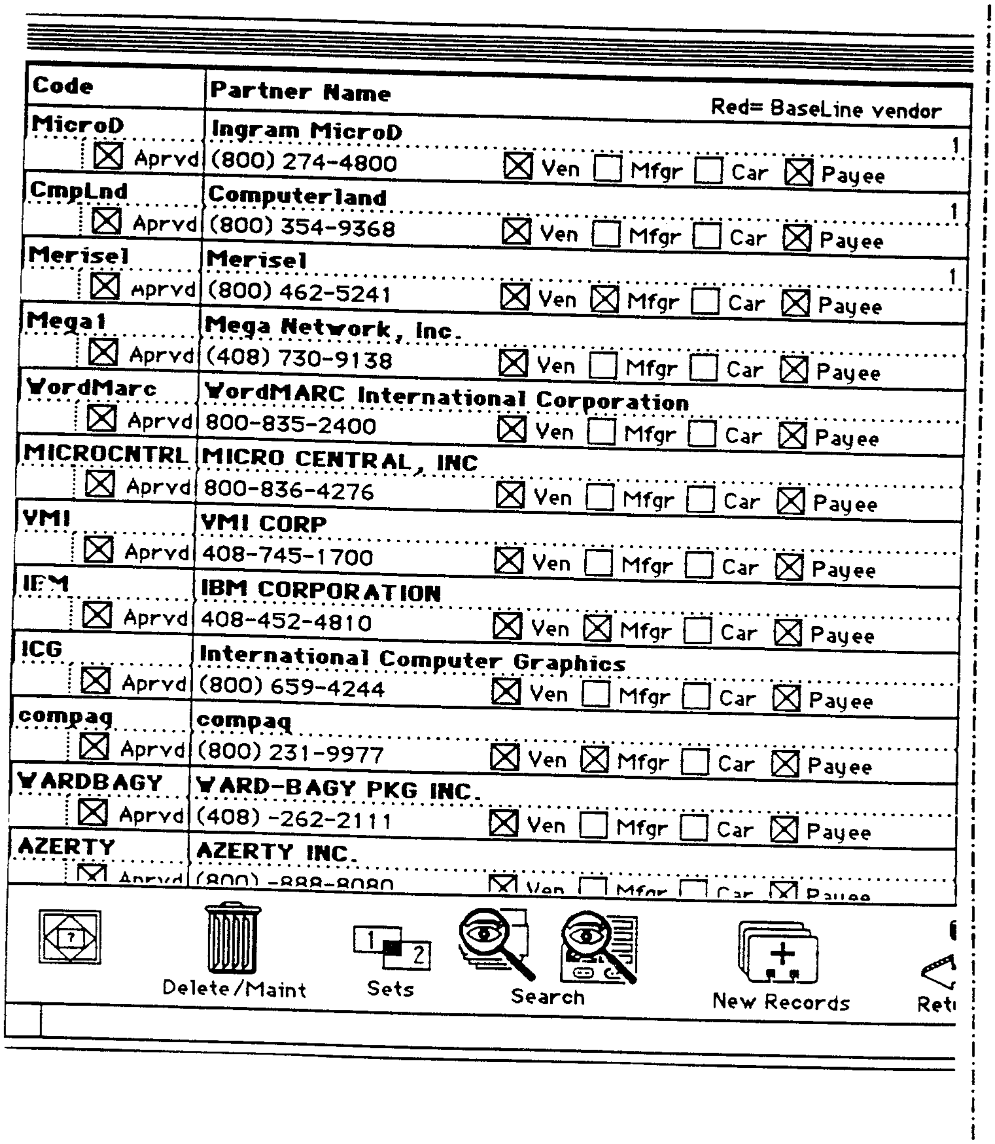
Reserved space for more expense payees

☐ Automatic Invoice

FIG. 102B

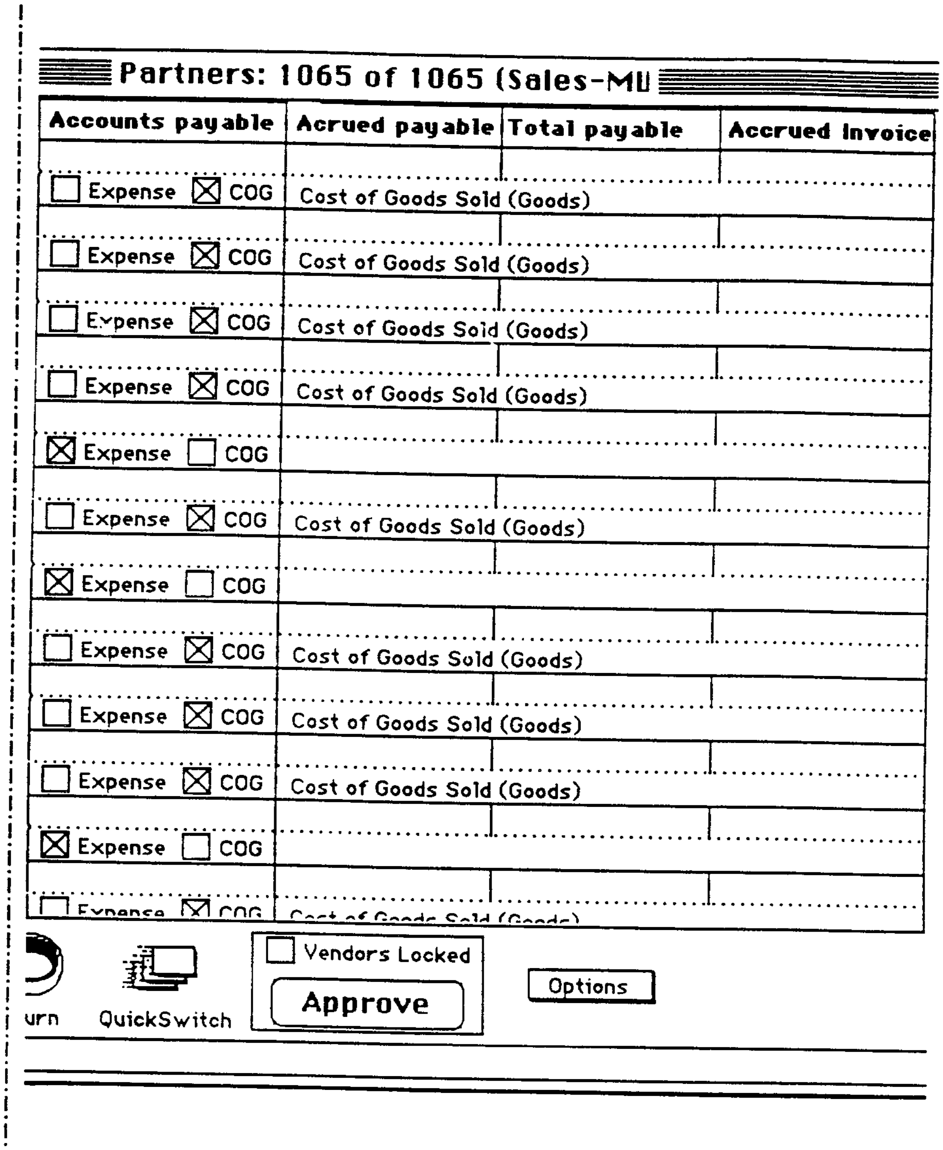
Fig. 103





Code		Partner Name						Red= BaseLine vendor
MicroD	☒ Aprvd	Ingram MicroD	(800) 274-4800	☒ Ven	☐ Mfgr	☐ Car	☒ Payee	1
CmpLnd	☒ Aprvd	Computerland	(800) 354-9368	☒ Ven	☐ Mfgr	☐ Car	☒ Payee	1
Merisel	☒ Aprvd	Merisel	(800) 462-5241	☒ Ven	☒ Mfgr	☐ Car	☒ Payee	1
Mega1	☒ Aprvd	Mega Network, Inc.	(408) 730-9138	☒ Ven	☐ Mfgr	☐ Car	☒ Payee	
WordMarc	☒ Aprvd	WordMARC International Corporation	800-835-2400	☒ Ven	☐ Mfgr	☐ Car	☒ Payee	
MICROCNTRL	☒ Aprvd	MICRO CENTRAL, INC	800-836-4276	☒ Ven	☐ Mfgr	☐ Car	☒ Payee	
VMI	☒ Aprvd	VMI CORP	408-745-1700	☒ Ven	☐ Mfgr	☐ Car	☒ Payee	
IBM	☒ Aprvd	IBM CORPORATION	408-452-4810	☒ Ven	☒ Mfgr	☐ Car	☒ Payee	
ICG	☒ Aprvd	International Computer Graphics	(800) 659-4244	☒ Ven	☐ Mfgr	☐ Car	☒ Payee	
compaq	☒ Aprvd	compaq	(800) 231-9977	☒ Ven	☒ Mfgr	☐ Car	☒ Payee	
WARDBAGY	☒ Aprvd	WARD-BAGY PKG INC.	(408) -262-2111	☒ Ven	☐ Mfgr	☐ Car	☒ Payee	
AZERTY	☒ Aprvd	AZERTY INC.	(800) -888-8080	☒ Ven	☐ Mfgr	☐ Car	☒ Payee	

FIG. 103A



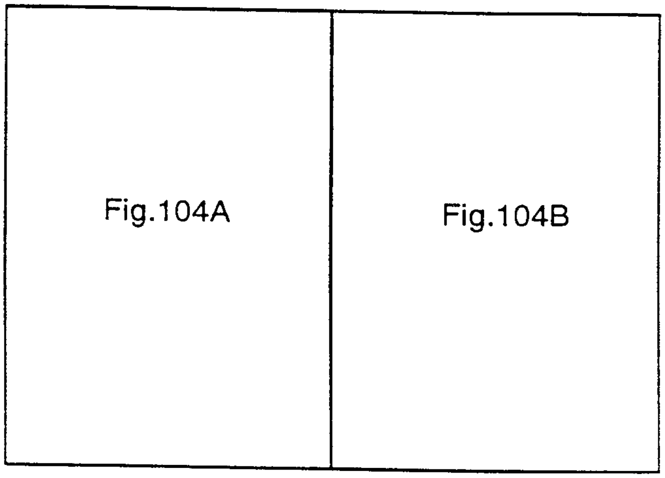
Partners: 1065 of 1065 (Sales-MU

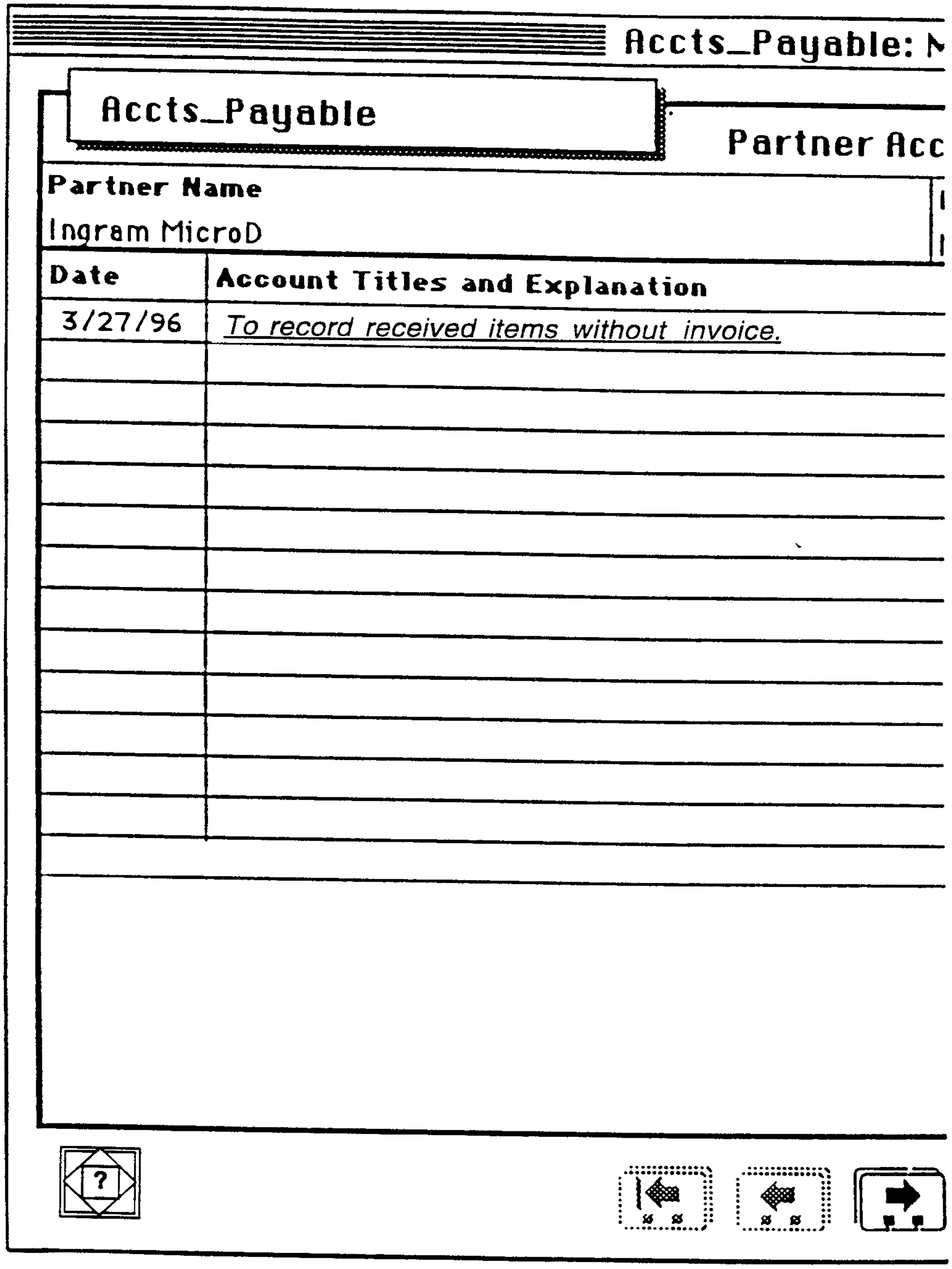
Accounts payable	Acrued payable	Total payable	Accrued Invoice
☐ Expense ☒ COG	Cost of Goods Sold (Goods)		
☐ Expense ☒ COG	Cost of Goods Sold (Goods)		
☐ Expense ☒ COG	Cost of Goods Sold (Goods)		
☐ Expense ☒ COG	Cost of Goods Sold (Goods)		
☒ Expense ☐ COG			
☐ Expense ☒ COG	Cost of Goods Sold (Goods)		
☒ Expense ☐ COG			
☐ Expense ☒ COG	Cost of Goods Sold (Goods)		
☐ Expense ☒ COG	Cost of Goods Sold (Goods)		
☐ Expense ☒ COG	Cost of Goods Sold (Goods)		
☒ Expense ☐ COG			
☐ Expense ☒ COG	Cost of Goods Sold (Goods)		

☐ Vendors Locked

FIG. 103B

Fig. 104

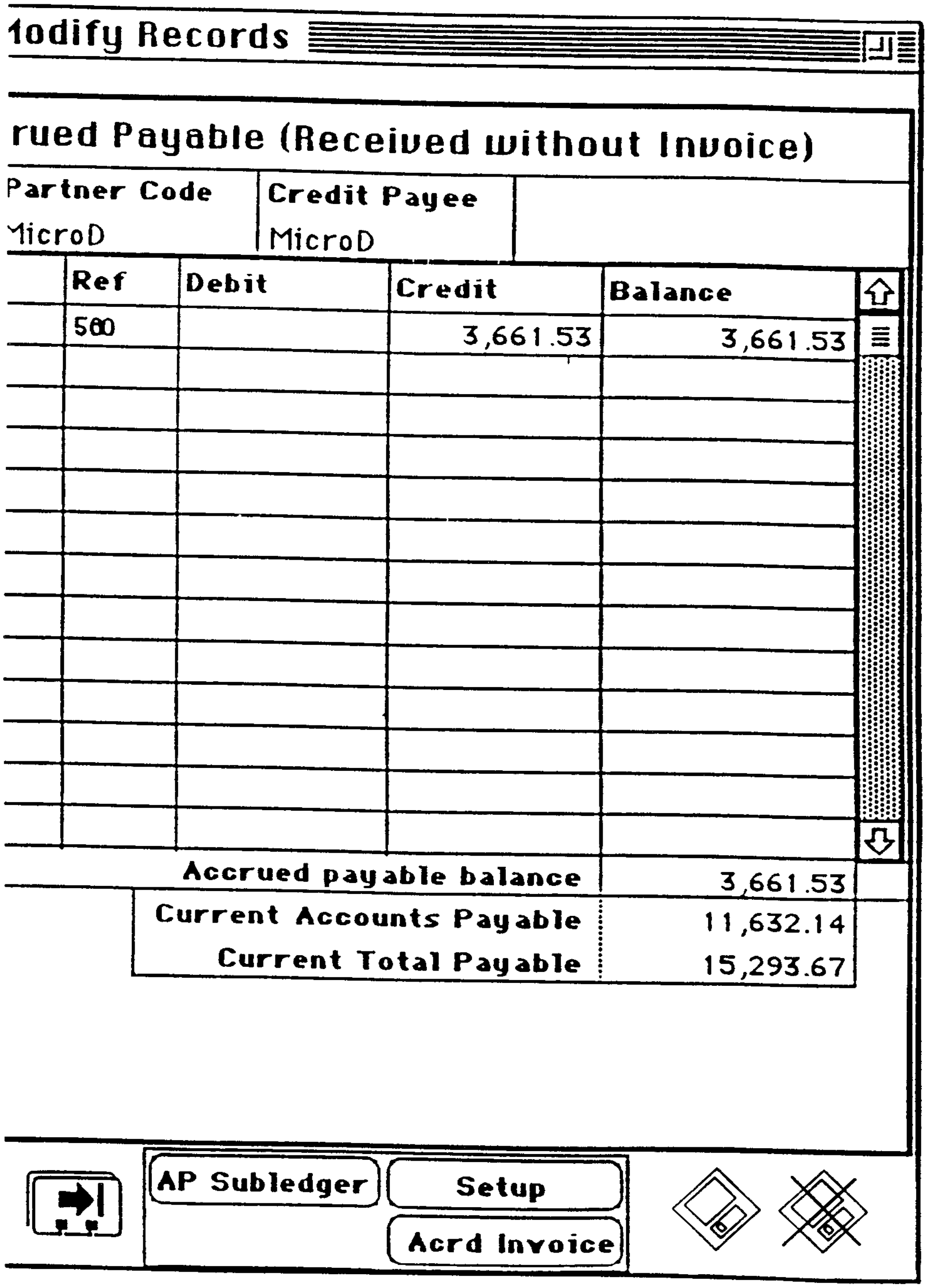




Partner Name
Ingram MicroD

Date	Account Titles and Explanation
3/27/96	To record received items without invoice.

FIG. 104A



1odify Records

rued Payable (Received without Invoice)

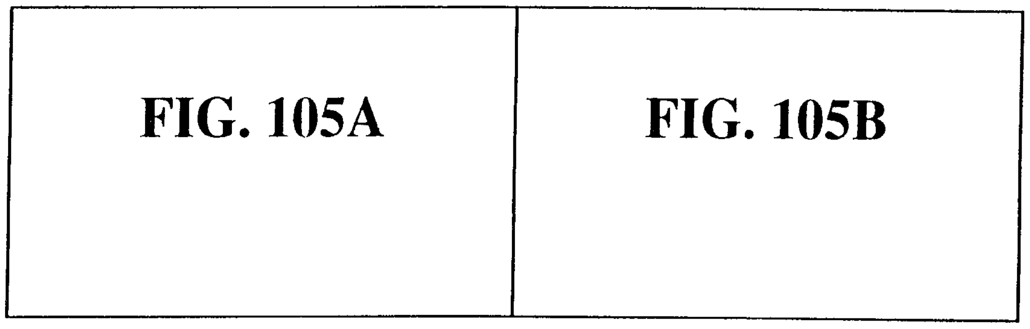
Partner Code	Credit Payee
1icroD	MicroD

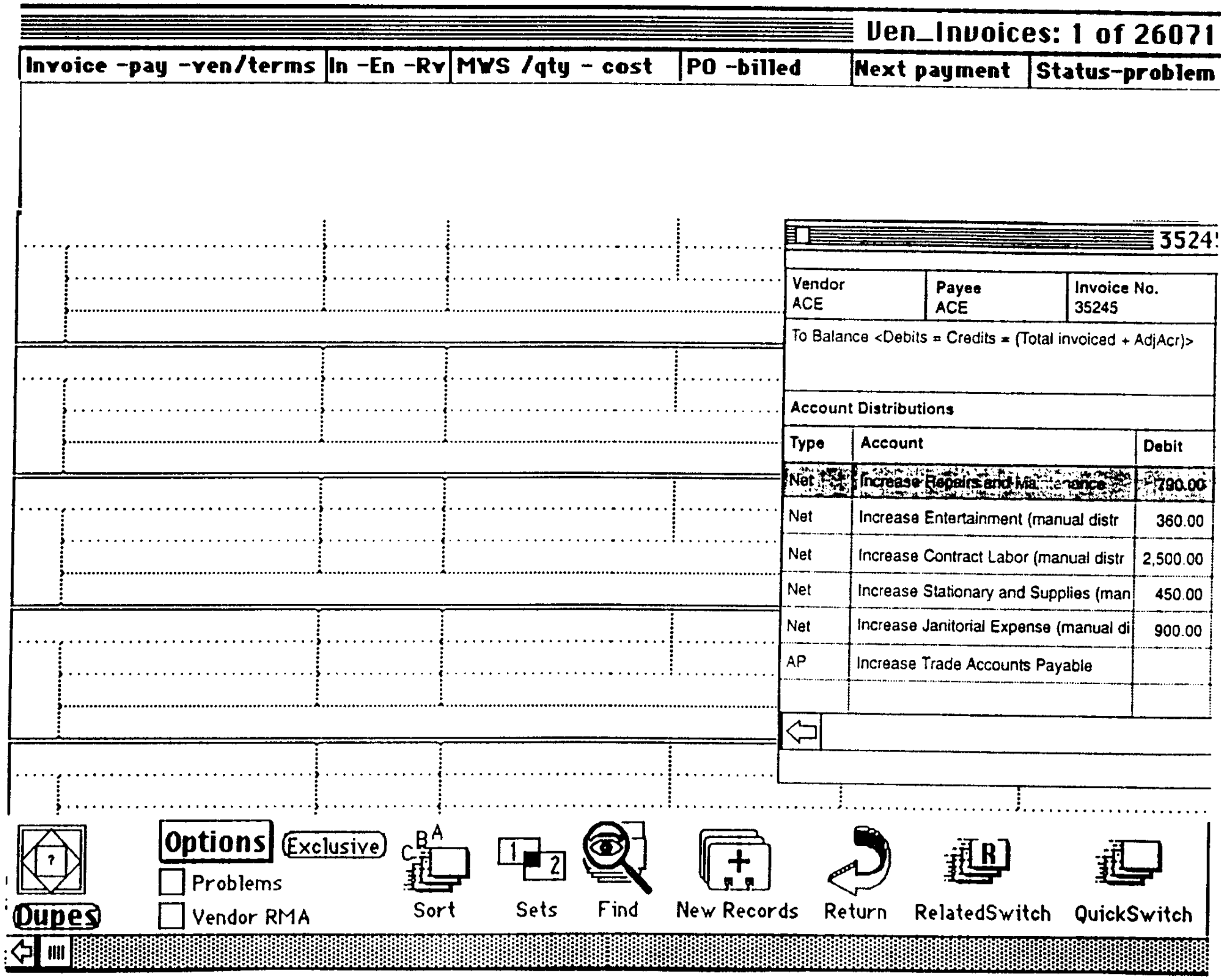
Ref	Debit	Credit	Balance
560		3,661.53	3,661.53

Accrued payable balance	3,661.53
Current Accounts Payable	11,632.14
Current Total Payable	15,293.67

FIG. 104B

FIG. 105A





☐ Problems
☐ Vendor RMA

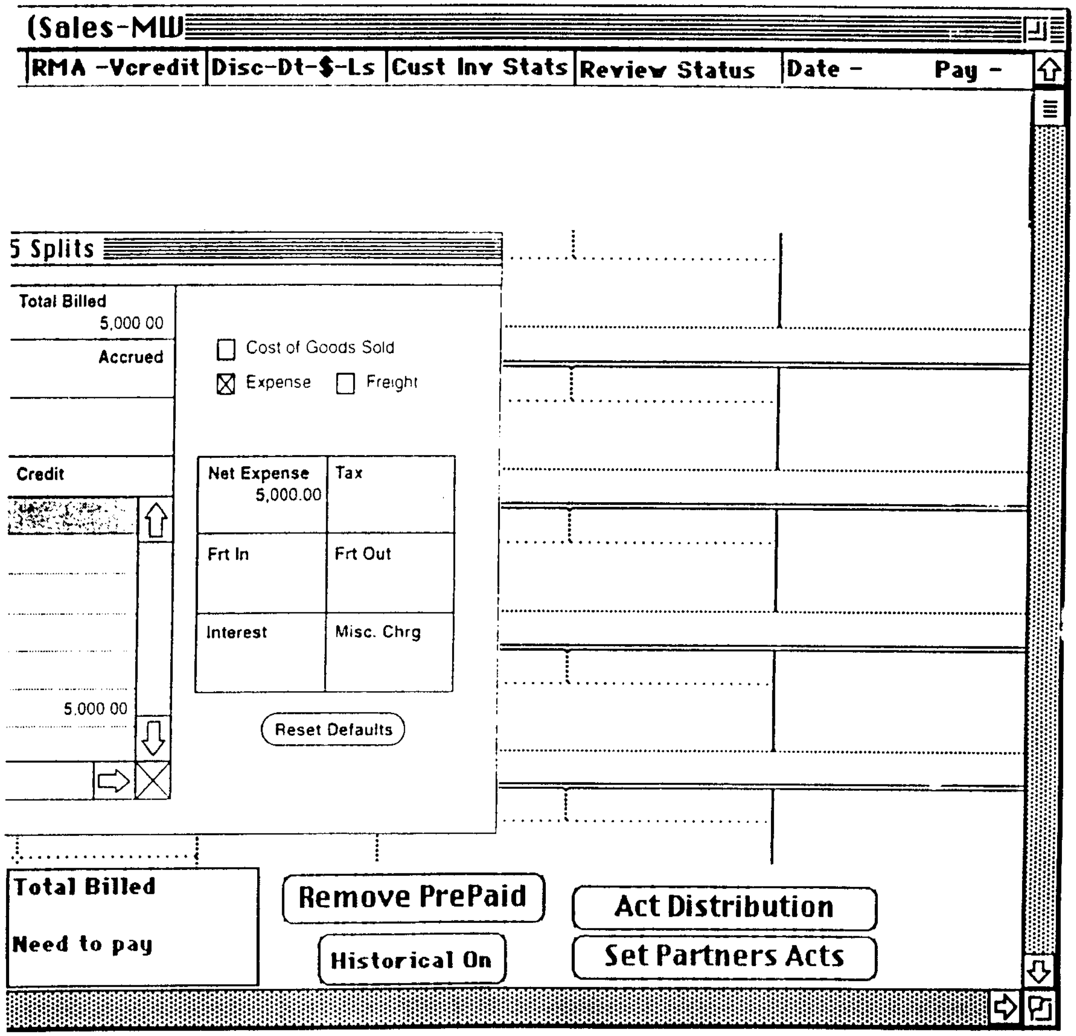
Vendor	Payee	Invoice No.
ACE	ACE	35245

To Balance <Debits = Credits = (Total invoiced + AdjAcr)>

Account Distributions

Type	Account	Debit
Net	Increase Repairs and Maintenance	790.00
Net	Increase Entertainment (manual distr	360.00
Net	Increase Contract Labor (manual distr	2,500.00
Net	Increase Stationary and Supplies (man	450.00
Net	Increase Janitorial Expense (manual di	900.00
AP	Increase Trade Accounts Payable	

FIG. 105A



Total Billed 5,000.00

Accrued

Credit

5,000.00

☐ Cost of Goods Sold

☒ Expense ☐ Freight

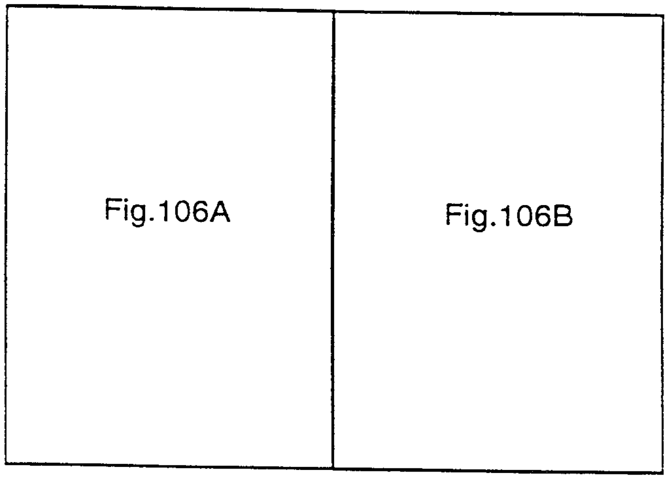
Net Expense 5,000.00	Tax
Frt In	Frt Out
Interest	Misc. Chrg

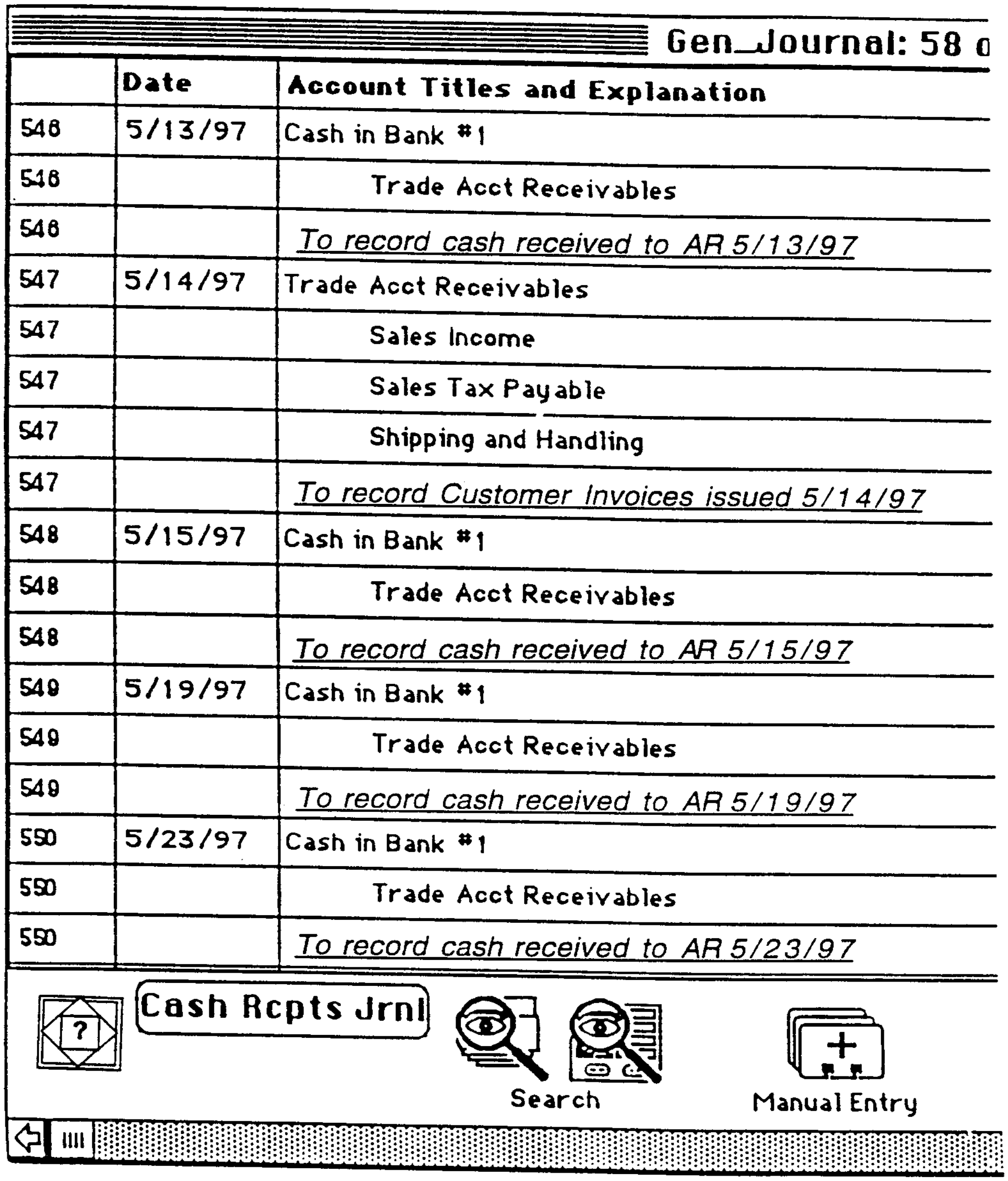
Total Billed

Need to pay

FIG. 105B

Fig. 106

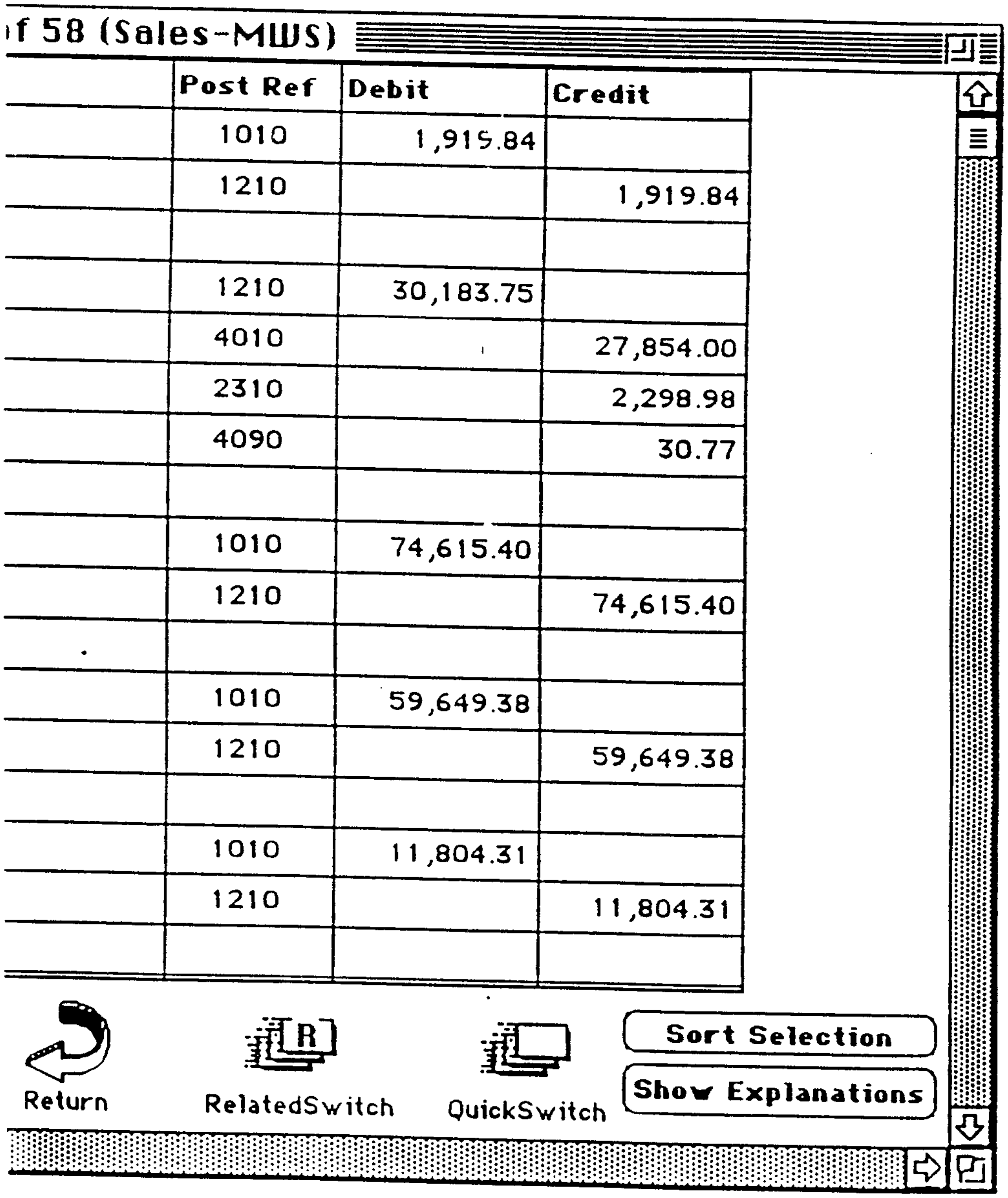




Gen_Journal: 58 o

	Date	Account Titles and Explanation
546	5/13/97	Cash in Bank #1
546		Trade Acct Receivables
546		*To record cash received to AR 5/13/97*
547	5/14/97	Trade Acct Receivables
547		Sales Income
547		Sales Tax Payable
547		Shipping and Handling
547		*To record Customer Invoices issued 5/14/97*
548	5/15/97	Cash in Bank #1
548		Trade Acct Receivables
548		*To record cash received to AR 5/15/97*
549	5/19/97	Cash in Bank #1
549		Trade Acct Receivables
549		*To record cash received to AR 5/19/97*
550	5/23/97	Cash in Bank #1
550		Trade Acct Receivables
550		*To record cash received to AR 5/23/97*

FIG. 106A



f 58 (Sales-MWS)

Post Ref	Debit	Credit
1010	1,919.84	
1210		1,919.84
1210	30,183.75	
4010		27,854.00
2310		2,298.98
4090		30.77
1010	74,615.40	
1210		74,615.40
1010	59,649.38	
1210		59,649.38
1010	11,804.31	
1210		11,804.31

FIG. 106B

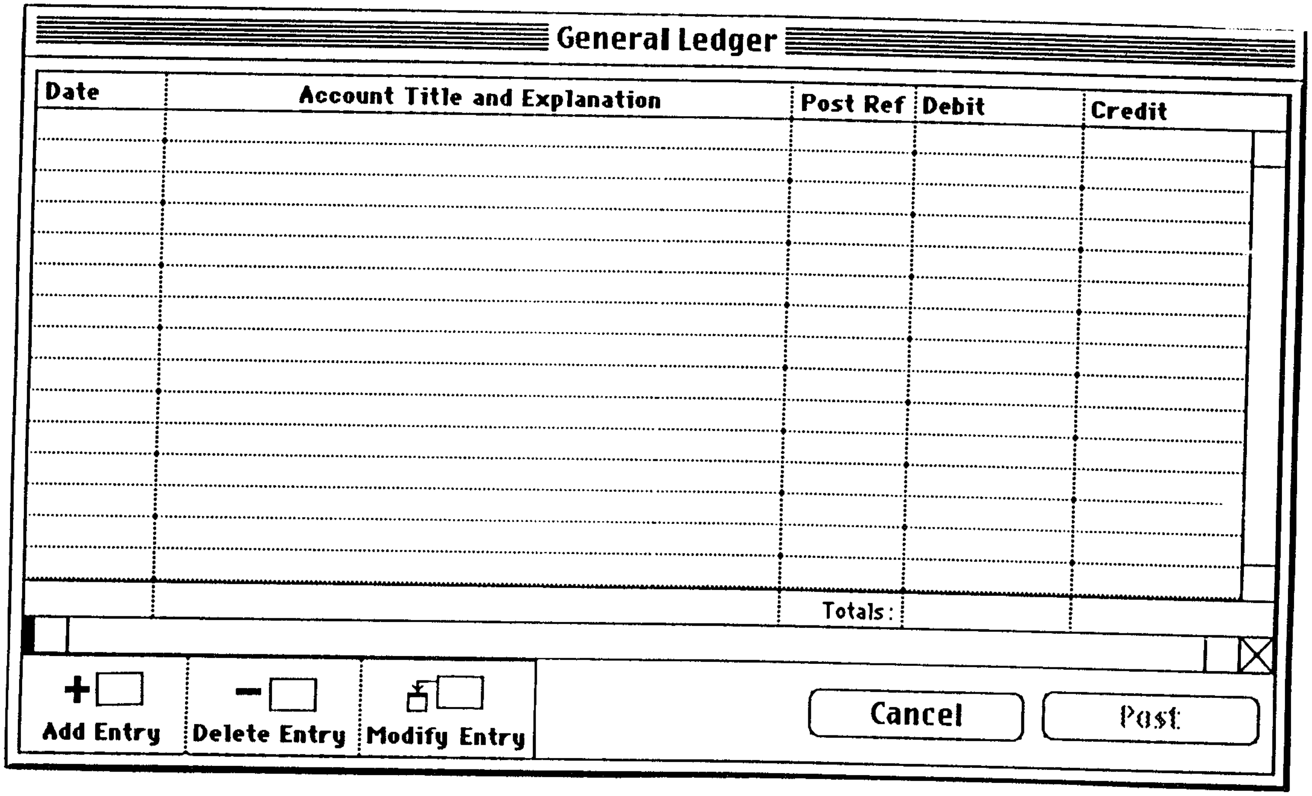
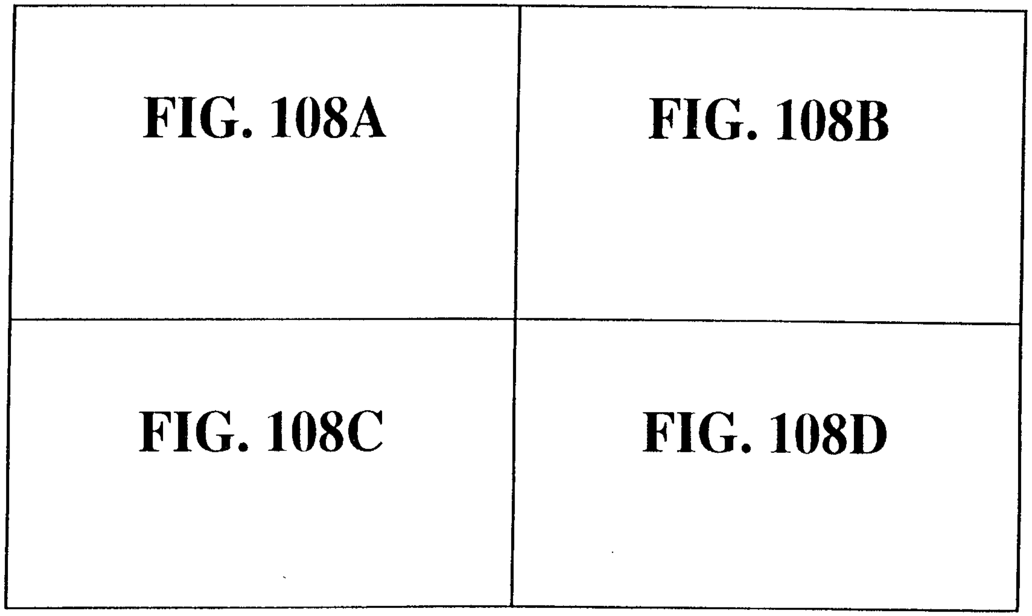
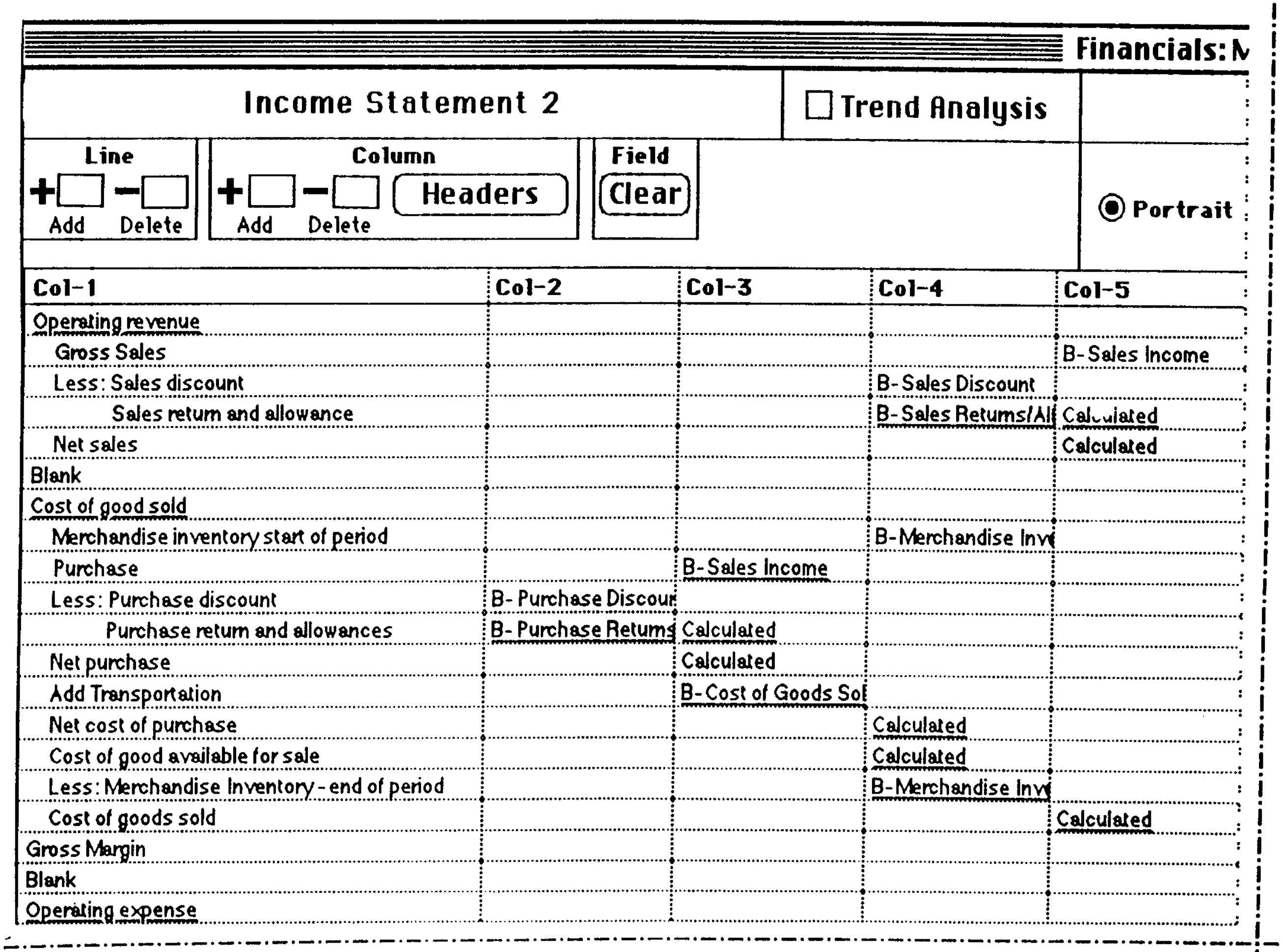

General Ledger
Date
Account Title and Explanation
Post Ref
Debit
Credit
Totals:
Add Entry
Delete Entry
Modify Entry
Cancel
Post

FIG. 107

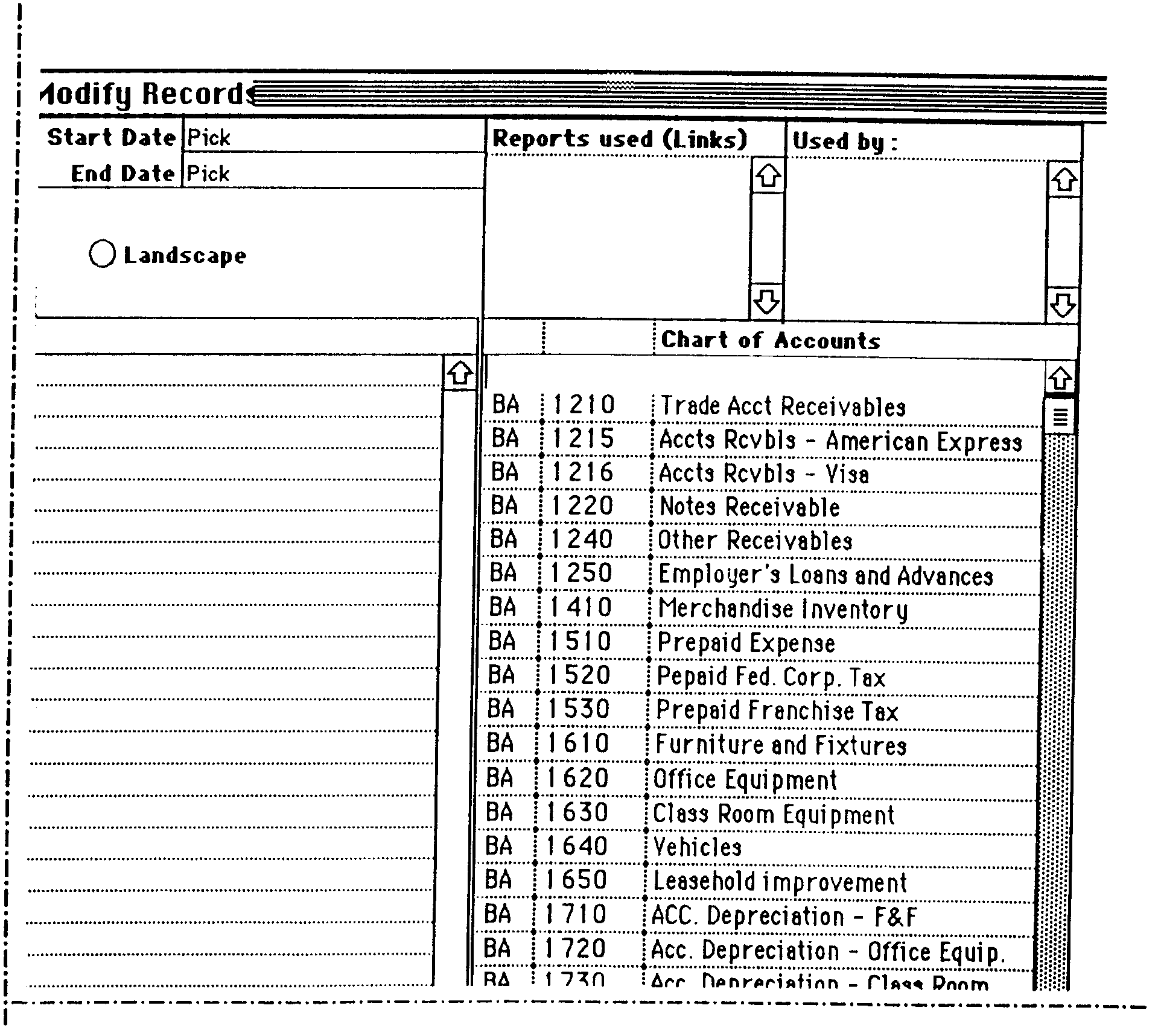
FIG. 108A





Col-1	Col-2	Col-3	Col-4	Col-5
Operating revenue				
Gross Sales				B-Sales Income
Less: Sales discount			B-Sales Discount	
Sales return and allowance			B-Sales Returns/Al	Calculated
Net sales				Calculated
Blank				
Cost of good sold				
Merchandise inventory start of period			B-Merchandise Inv	
Purchase		B-Sales Income		
Less: Purchase discount	B- Purchase Discou			
Purchase return and allowances	B- Purchase Returns	Calculated		
Net purchase		Calculated		
Add Transportation		B-Cost of Goods Sol		
Net cost of purchase			Calculated	
Cost of good available for sale			Calculated	
Less: Merchandise Inventory - end of period			B-Merchandise Inv	
Cost of goods sold				Calculated
Gross Margin				
Blank				
Operating expense				

FIG. 108A



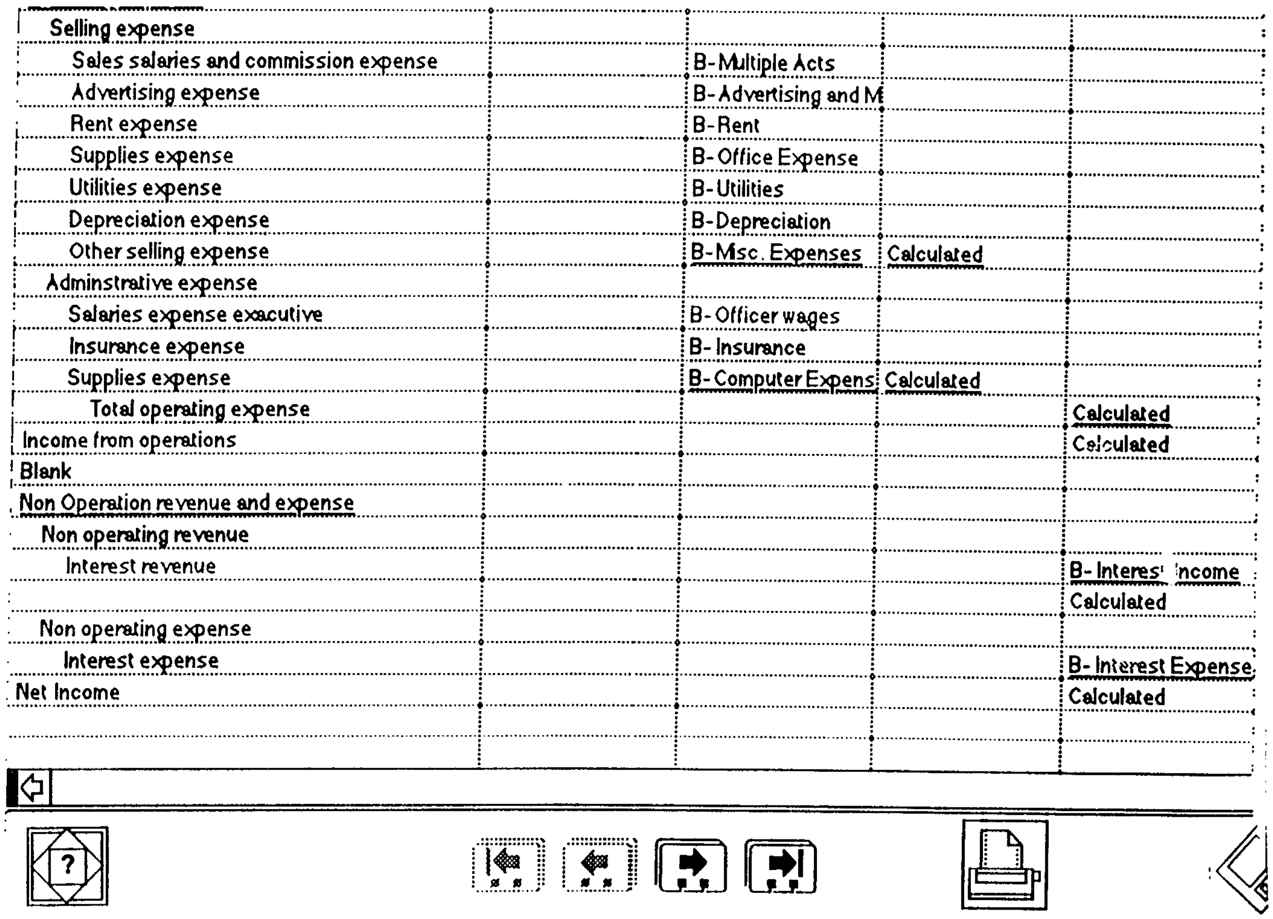
Start Date Pick

End Date Pick

Chart of Accounts

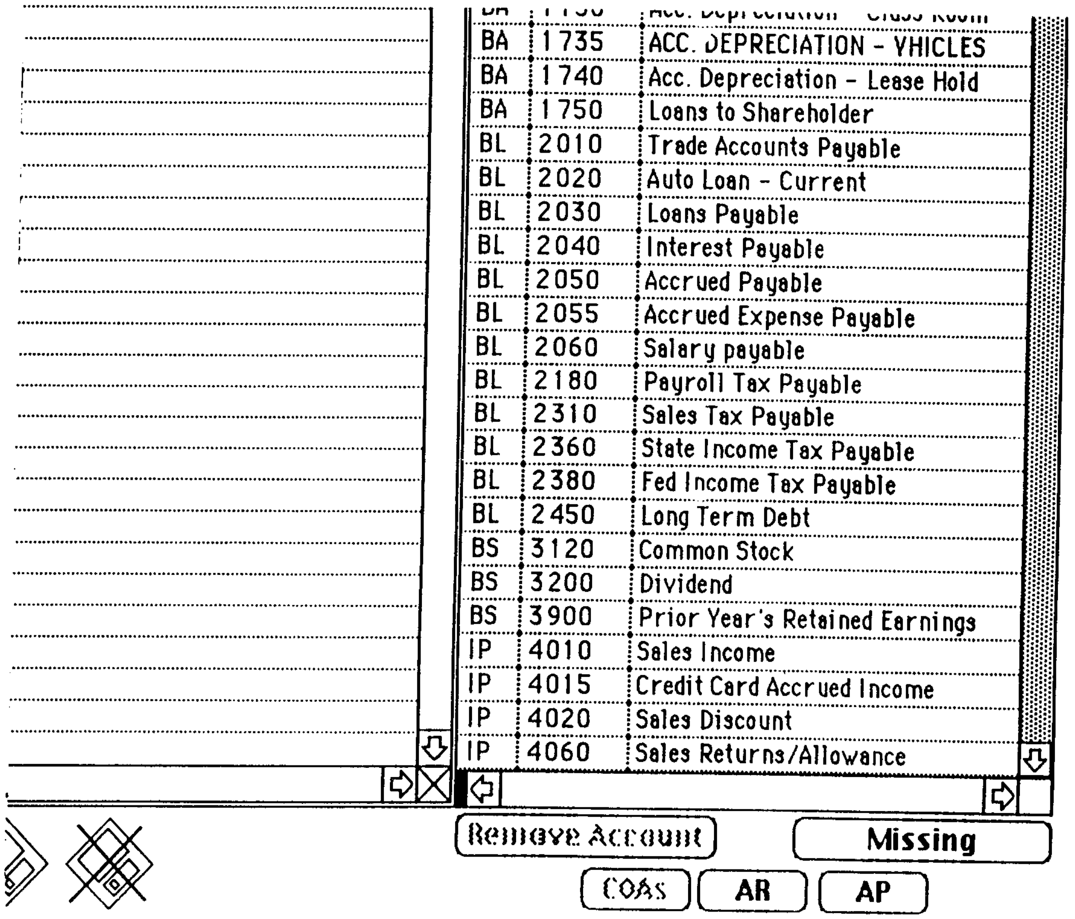
BA	1210	Trade Acct Receivables
BA	1215	Accts Rcvbls - American Express
BA	1216	Accts Rcvbls - Visa
BA	1220	Notes Receivable
BA	1240	Other Receivables
BA	1250	Employer's Loans and Advances
BA	1410	Merchandise Inventory
BA	1510	Prepaid Expense
BA	1520	Pepaid Fed. Corp. Tax
BA	1530	Prepaid Franchise Tax
BA	1610	Furniture and Fixtures
BA	1620	Office Equipment
BA	1630	Class Room Equipment
BA	1640	Vehicles
BA	1650	Leasehold improvement
BA	1710	ACC. Depreciation - F&F
BA	1720	Acc. Depreciation - Office Equip.
BA	1730	Acc. Depreciation - Class Room

FIG. 108B



Selling expense				
Sales salaries and commission expense		B-Multiple Acts		
Advertising expense		B-Advertising and M		
Rent expense		B-Rent		
Supplies expense		B-Office Expense		
Utilities expense		B-Utilities		
Depreciation expense		B-Depreciation		
Other selling expense		B-Msc. Expenses	Calculated	
Adminstrative expense				
Salaries expense executive		B-Officer wages		
Insurance expense		B-Insurance		
Supplies expense		B-Computer Expens	Calculated	
Total operating expense				Calculated
Income from operations				Calculated
Blank				
Non Operation revenue and expense				
Non operating revenue				
Interest revenue				B-Interes' ncome
				Calculated
Non operating expense				
Interest expense				B-Interest Expense
Net Income				Calculated

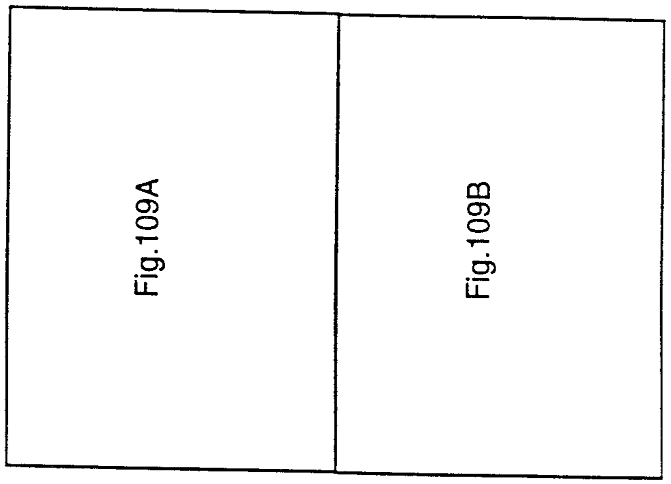
FIG. 108C



BA	1735	ACC. DEPRECIATION - VHICLES
BA	1740	Acc. Depreciation - Lease Hold
BA	1750	Loans to Shareholder
BL	2010	Trade Accounts Payable
BL	2020	Auto Loan - Current
BL	2030	Loans Payable
BL	2040	Interest Payable
BL	2050	Accrued Payable
BL	2055	Accrued Expense Payable
BL	2060	Salary payable
BL	2180	Payroll Tax Payable
BL	2310	Sales Tax Payable
BL	2360	State Income Tax Payable
BL	2380	Fed Income Tax Payable
BL	2450	Long Term Debt
BS	3120	Common Stock
BS	3200	Dividend
BS	3900	Prior Year's Retained Earnings
IP	4010	Sales Income
IP	4015	Credit Card Accrued Income
IP	4020	Sales Discount
IP	4060	Sales Returns/Allowance

FIG. 108D

Fig. 109



Operating revenue				
Gross sales				100,000.00
Less:Sales discounts			100,000.00	
Sales returns and allowances			100,000.00	200,000.00
Net sales				-100,000.00
Cost of good sold				
Merchandise inventory, start of period			100,000.00	
Purchases		100,000.00		
Less: Purchase discounts	100,000.00			
Purchase returns and allowances	100,000.00	200,000.00		
Net purchases		-100,000.00		
Add: Transportation-in		100,000.00		
Net cost of purchases				
Cost of goods available for sale			100,000.00	
Less:Merchandise Inventory - end of period			100,000.00	
Cost of goods sold				
Gross Margin				-100,000.00

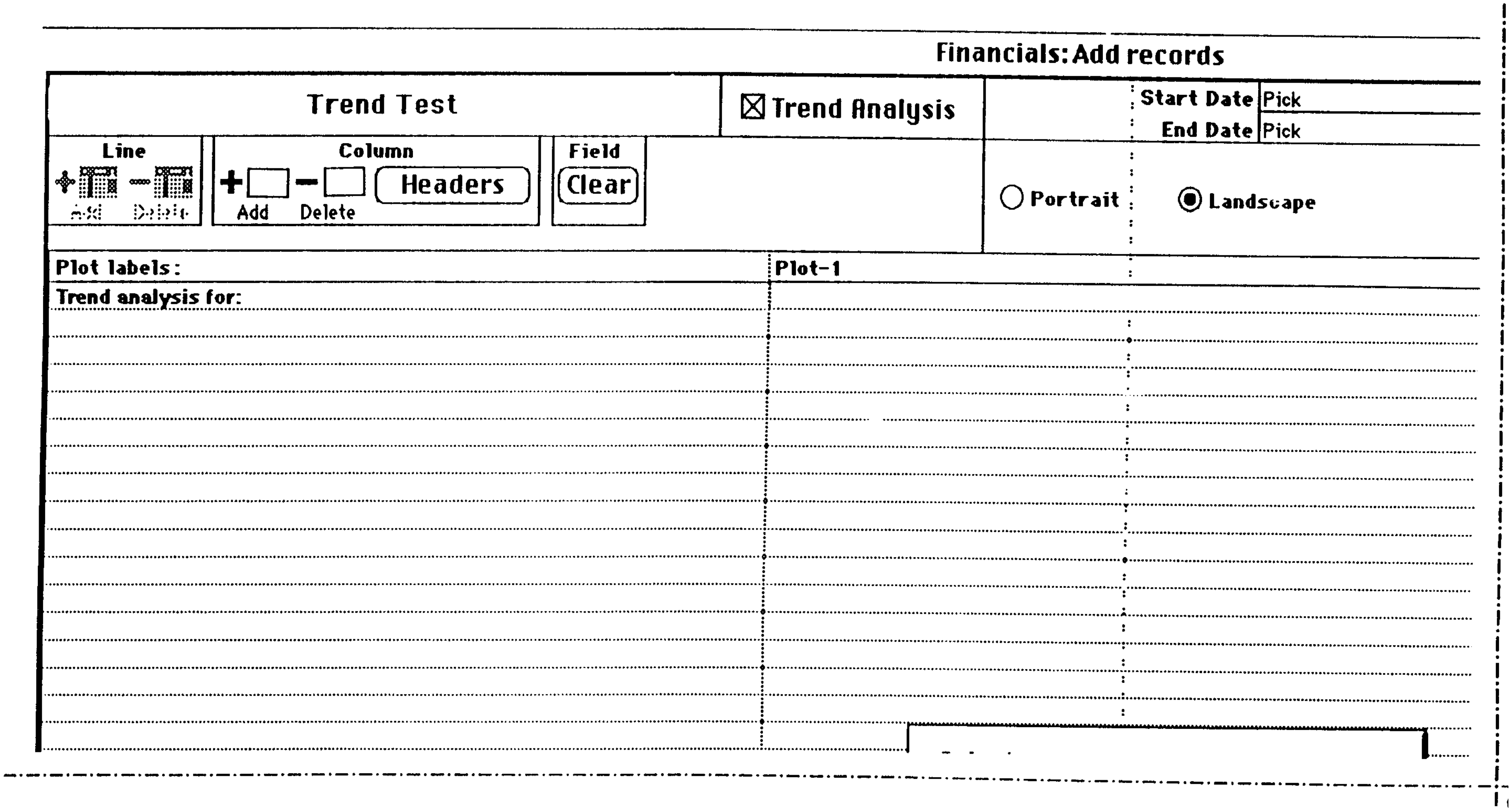
FIG. 109A

Operating expenses:			
Selling expences			
Sales salaries and commissions expenses	100,000.00		
Advertising expenses	100,000.00		
Rent expenses	100,000.00		
Supplies expenses	100,000.00		
Utilities expenses	100,000.00		
Depreciation expenses	100,000.00		
Other selling expenses	100,000.00	700,000.00	
Administrative expenses			
Salaries expenses, executive	100,000.00		
Insurance expenses	100,000.00		
Supplies expenses	100,000.00	300,000.00	
Total operating expenses			300,000.00
Income from operations			-400,000.00
Nonoperating revenues and expenses			
Nonoperating revenues			
Interest revenue			100,000.00
			-300,000.00
Nonoperating expenses			
Interest expenses			100,000.00
Net Income			-400,000.00

FIG. 109B

Fig. 110

Fig.110A	Fig.110C
Fig.110B	Fig.110D



Financials: Add records

Trend Test

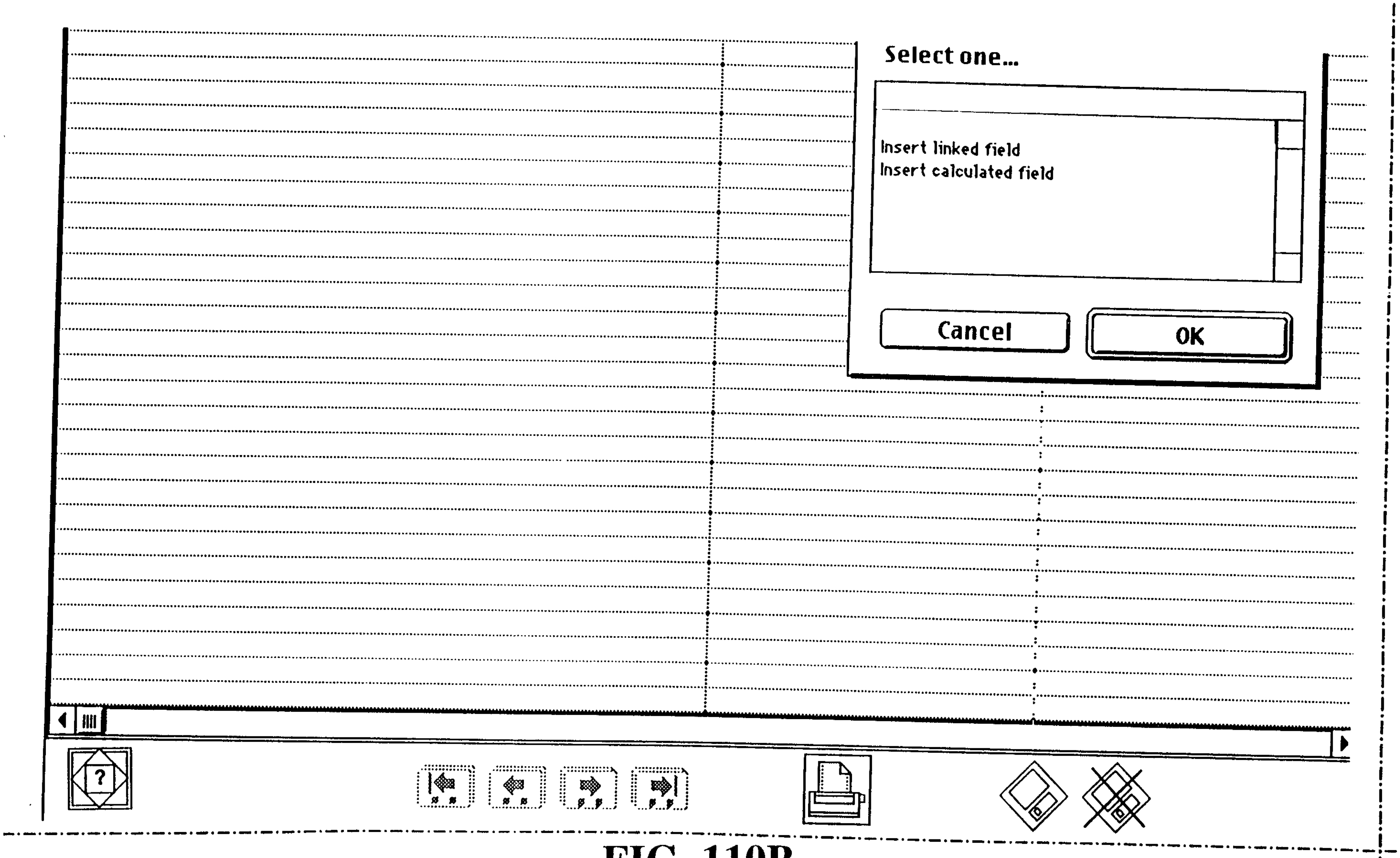
☒ Trend Analysis

Start Date Pick
End Date Pick

○ Portrait
● Landscape

Plot labels: Plot-1
Trend analysis for:

FIG. 110A



Select one...
Insert linked field
Insert calculated field
Cancel
OK
?

FIG. 110B

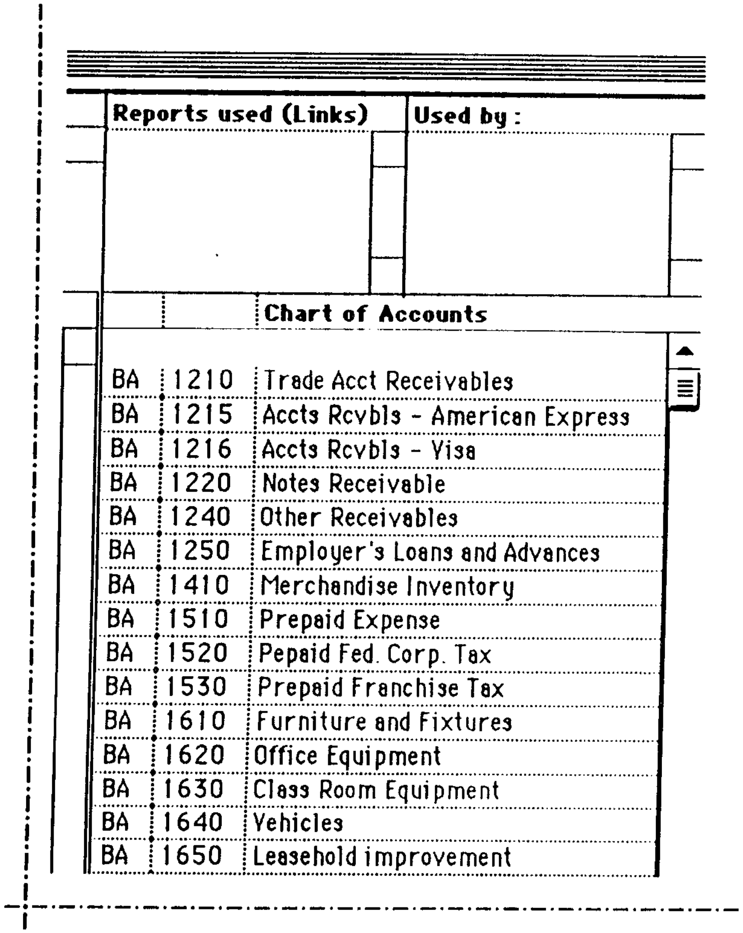
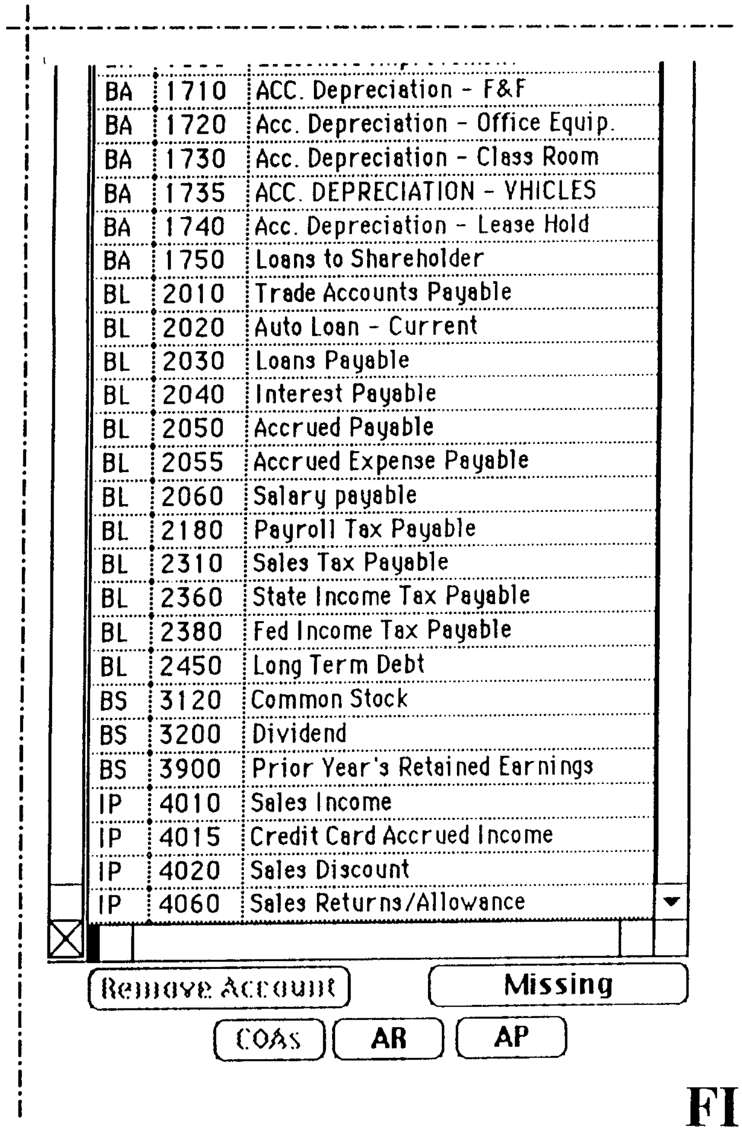


Chart of Accounts

BA	1210	Trade Acct Receivables
BA	1215	Accts Rcvbls - American Express
BA	1216	Accts Rcvbls - Visa
BA	1220	Notes Receivable
BA	1240	Other Receivables
BA	1250	Employer's Loans and Advances
BA	1410	Merchandise Inventory
BA	1510	Prepaid Expense
BA	1520	Pepaid Fed. Corp. Tax
BA	1530	Prepaid Franchise Tax
BA	1610	Furniture and Fixtures
BA	1620	Office Equipment
BA	1630	Class Room Equipment
BA	1640	Vehicles
BA	1650	Leasehold improvement

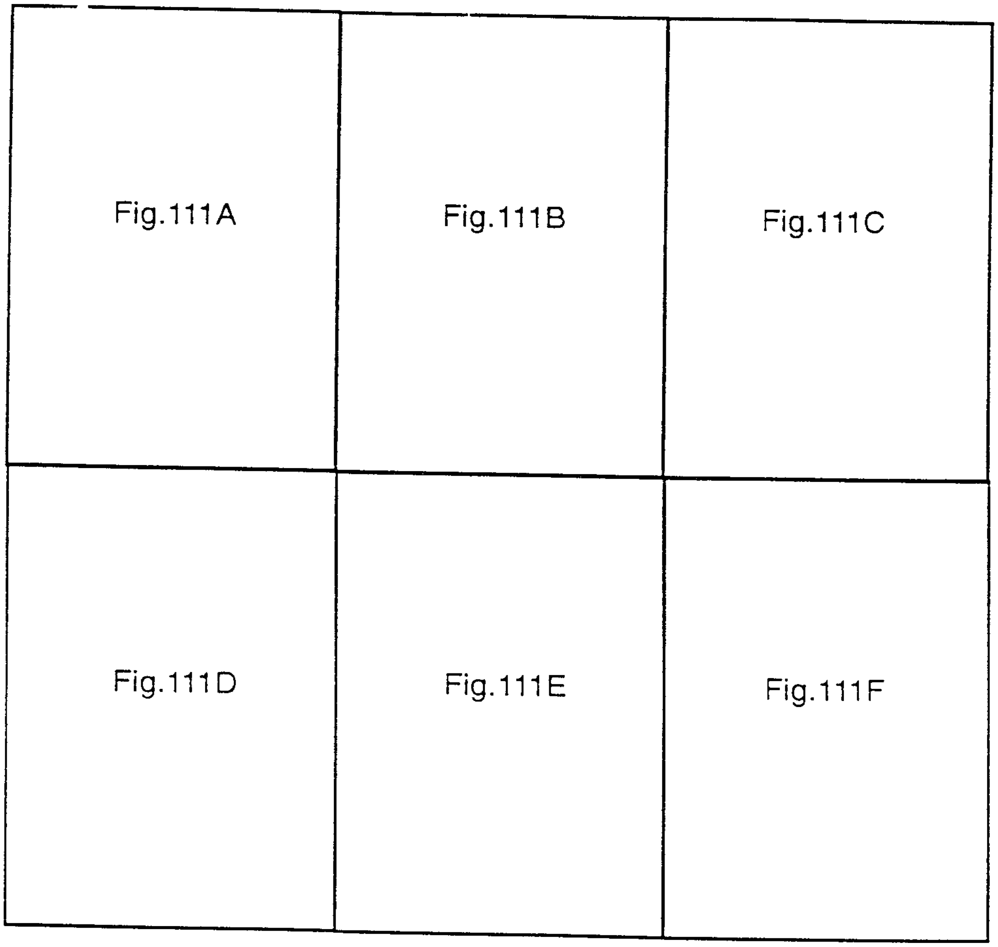
FIG. 110C

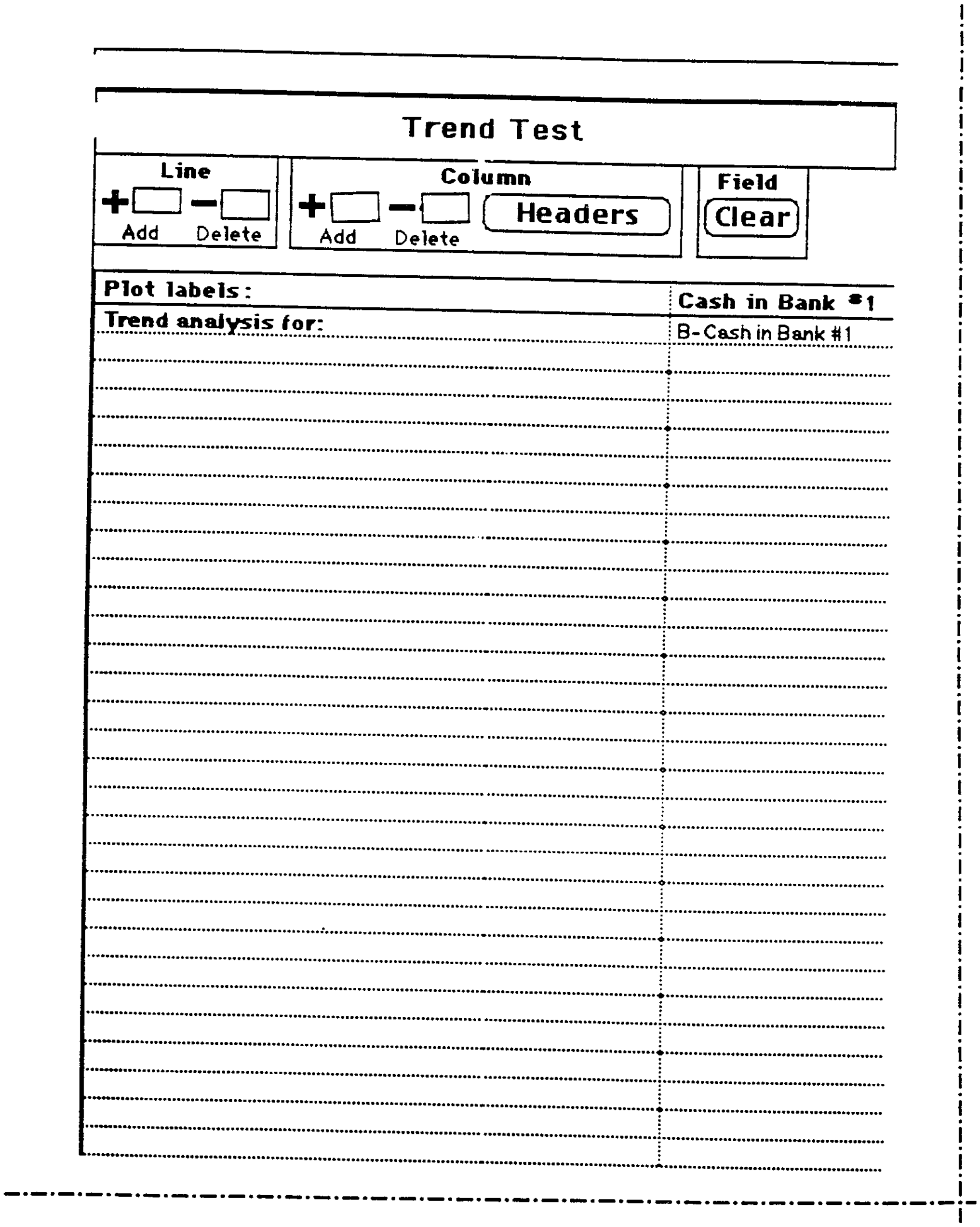


BA	1710	ACC. Depreciation - F&F
BA	1720	Acc. Depreciation - Office Equip.
BA	1730	Acc. Depreciation - Class Room
BA	1735	ACC. DEPRECIATION - VHICLES
BA	1740	Acc. Depreciation - Lease Hold
BA	1750	Loans to Shareholder
BL	2010	Trade Accounts Payable
BL	2020	Auto Loan - Current
BL	2030	Loans Payable
BL	2040	Interest Payable
BL	2050	Accrued Payable
BL	2055	Accrued Expense Payable
BL	2060	Salary payable
BL	2180	Payroll Tax Payable
BL	2310	Sales Tax Payable
BL	2360	State Income Tax Payable
BL	2380	Fed Income Tax Payable
BL	2450	Long Term Debt
BS	3120	Common Stock
BS	3200	Dividend
BS	3900	Prior Year's Retained Earnings
IP	4010	Sales Income
IP	4015	Credit Card Accrued Income
IP	4020	Sales Discount
IP	4060	Sales Returns/Allowance

FIG. 110D

Fig. 111

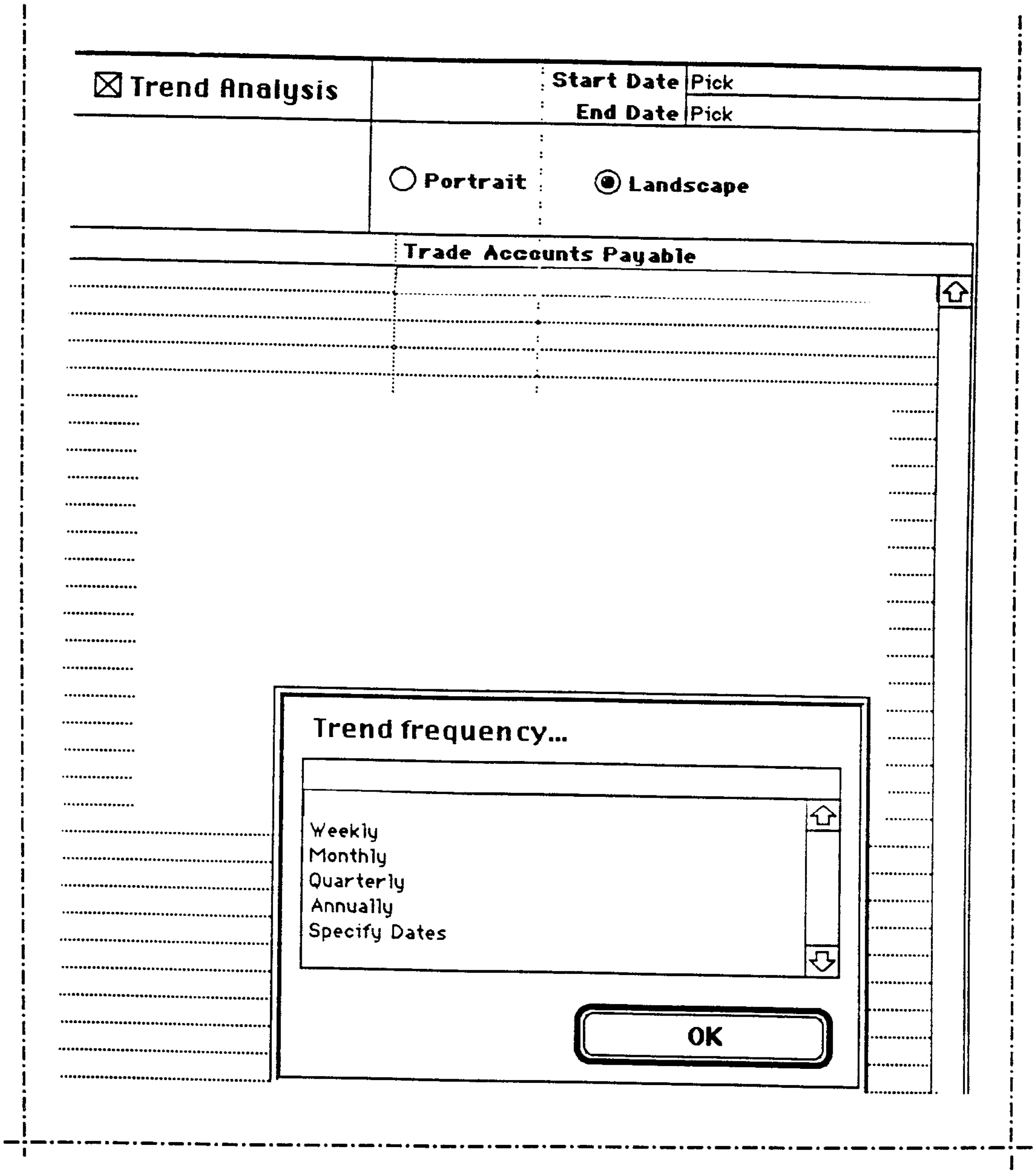




Plot labels: **Cash in Bank #1**

Trend analysis for: B-Cash in Bank #1

FIG. 111A



☒ Trend Analysis

Start Date Pick

End Date Pick

○ Portrait ● Landscape

Trade Accounts Payable

Trend frequency...

FIG. 111B

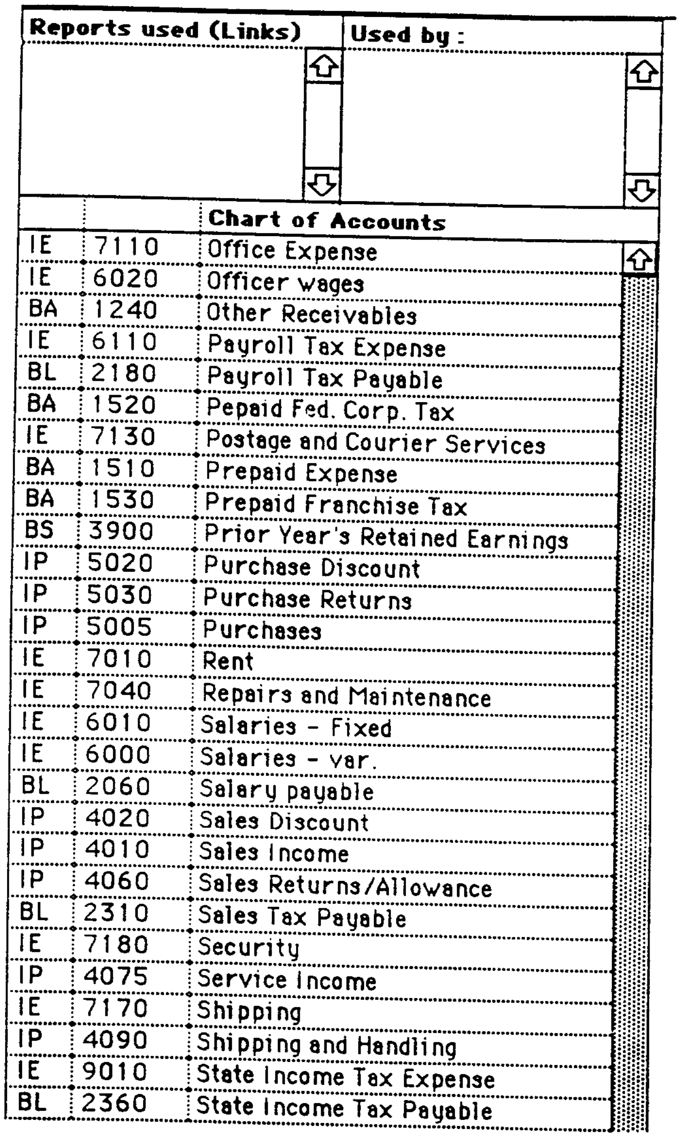


		Chart of Accounts
IE	7110	Office Expense
IE	6020	Officer wages
BA	1240	Other Receivables
IE	6110	Payroll Tax Expense
BL	2180	Payroll Tax Payable
BA	1520	Pepaid Fed. Corp. Tax
IE	7130	Postage and Courier Services
BA	1510	Prepaid Expense
BA	1530	Prepaid Franchise Tax
BS	3900	Prior Year's Retained Earnings
IP	5020	Purchase Discount
IP	5030	Purchase Returns
IP	5005	Purchases
IE	7010	Rent
IE	7040	Repairs and Maintenance
IE	6010	Salaries - Fixed
IE	6000	Salaries - var.
BL	2060	Salary payable
IP	4020	Sales Discount
IP	4010	Sales Income
IP	4060	Sales Returns/Allowance
BL	2310	Sales Tax Payable
IE	7180	Security
IP	4075	Service Income
IE	7170	Shipping
IP	4090	Shipping and Handling
IE	9010	State Income Tax Expense
BL	2360	State Income Tax Payable

FIG. 111C

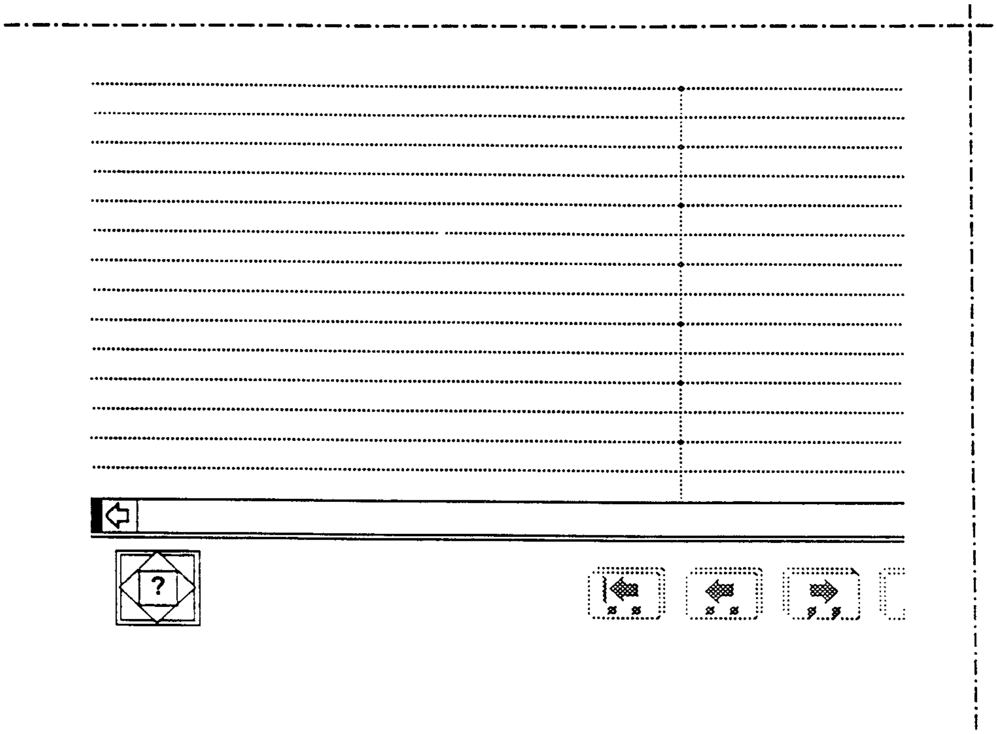


FIG. 111D

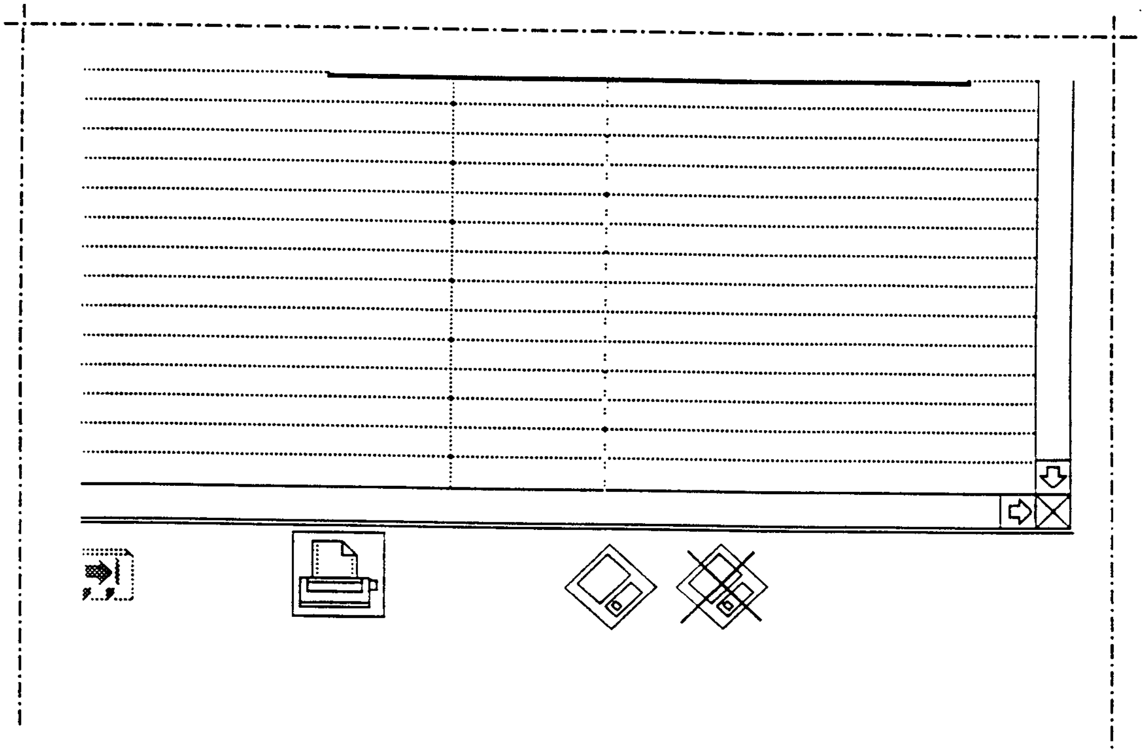
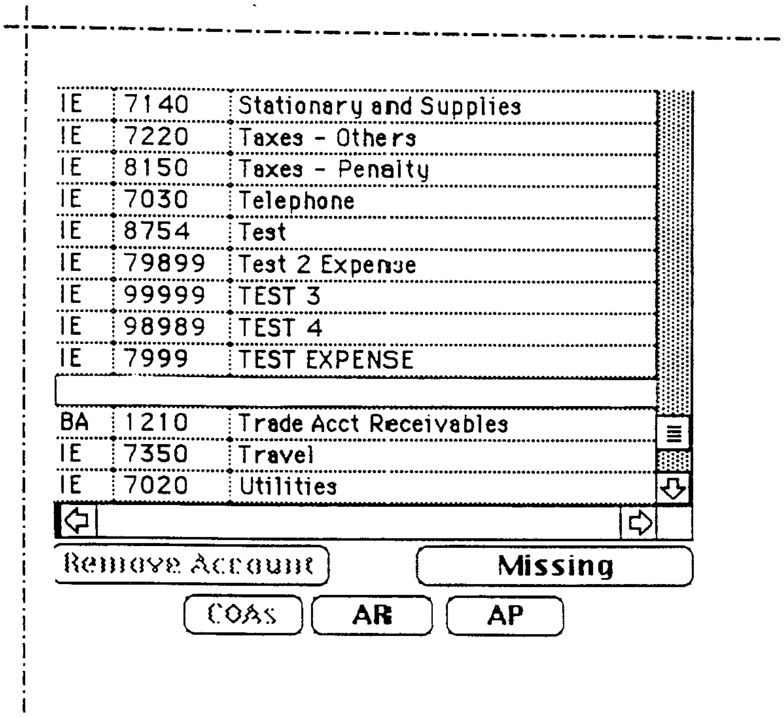


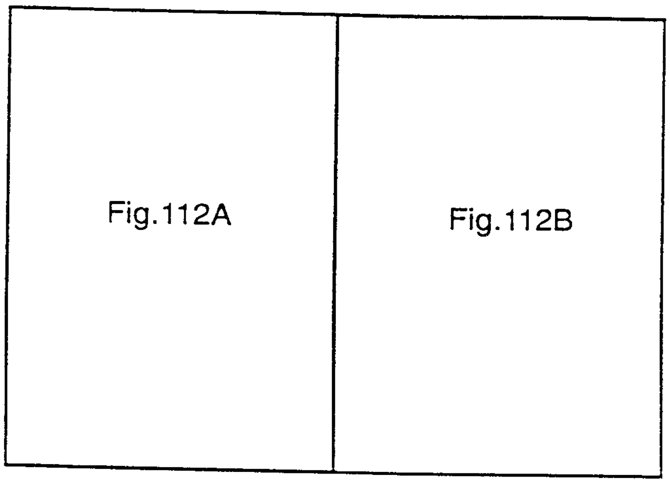
FIG. 111E

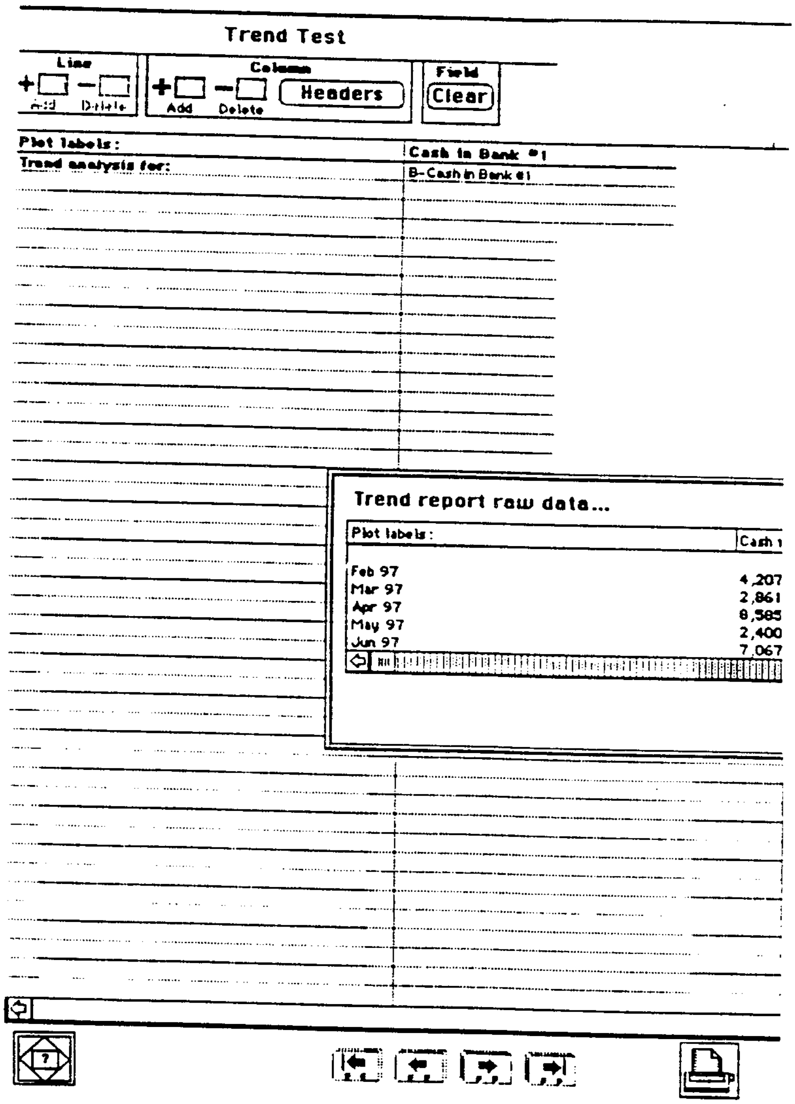


IE	7140	Stationary and Supplies
IE	7220	Taxes - Others
IE	8150	Taxes - Penalty
IE	7030	Telephone
IE	8754	Test
IE	79899	Test 2 Expense
IE	99999	TEST 3
IE	98989	TEST 4
IE	7999	TEST EXPENSE
BA	1210	Trade Acct Receivables
IE	7350	Travel
IE	7020	Utilities

FIG. 111F

Fig. 112





Plot labels:	Cash in Bank #1
Trend analysis for:	B-Cash in Bank #1

Trend report raw data...

Plot labels:	Cash
Feb 97	4,207
Mar 97	2,861
Apr 97	8,585
May 97	2,400
Jun 97	7,067

FIG. 112A

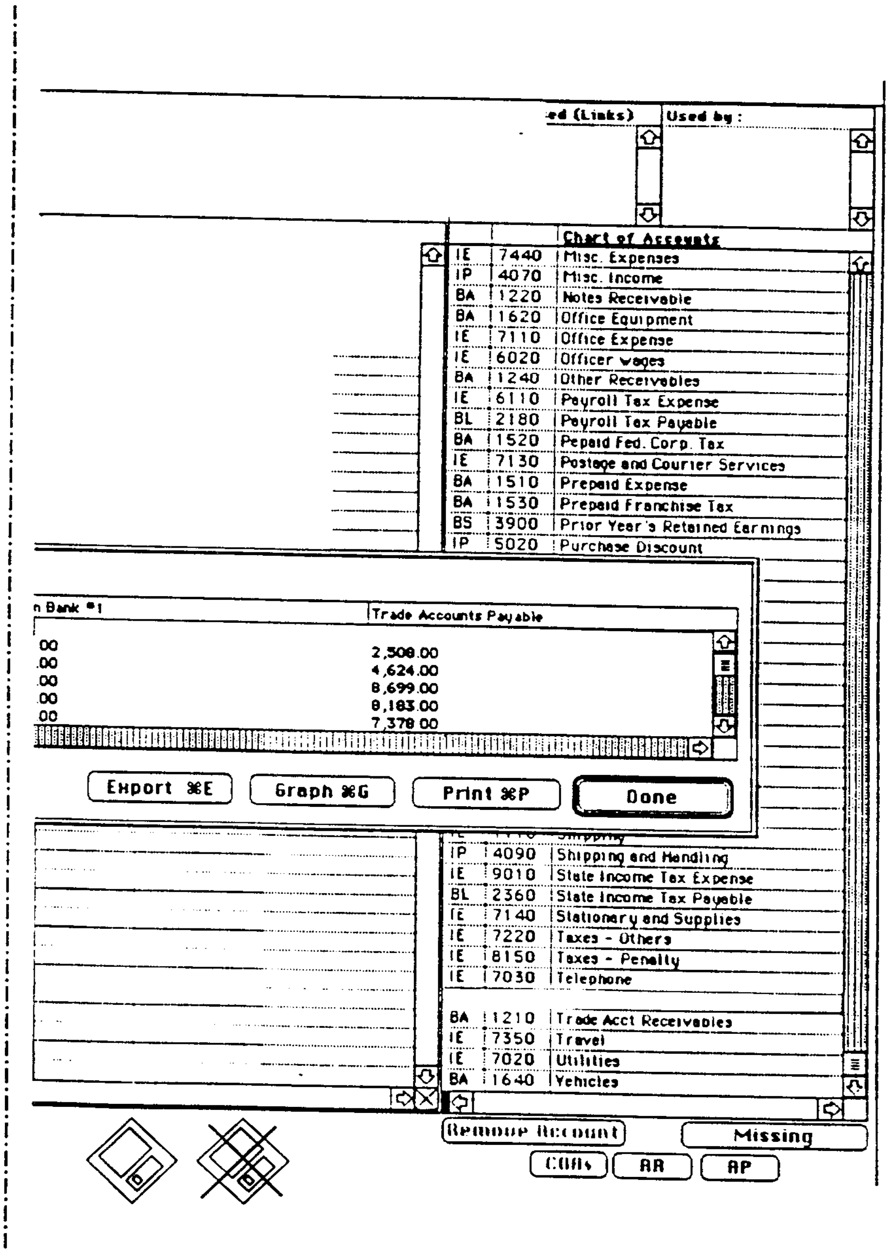
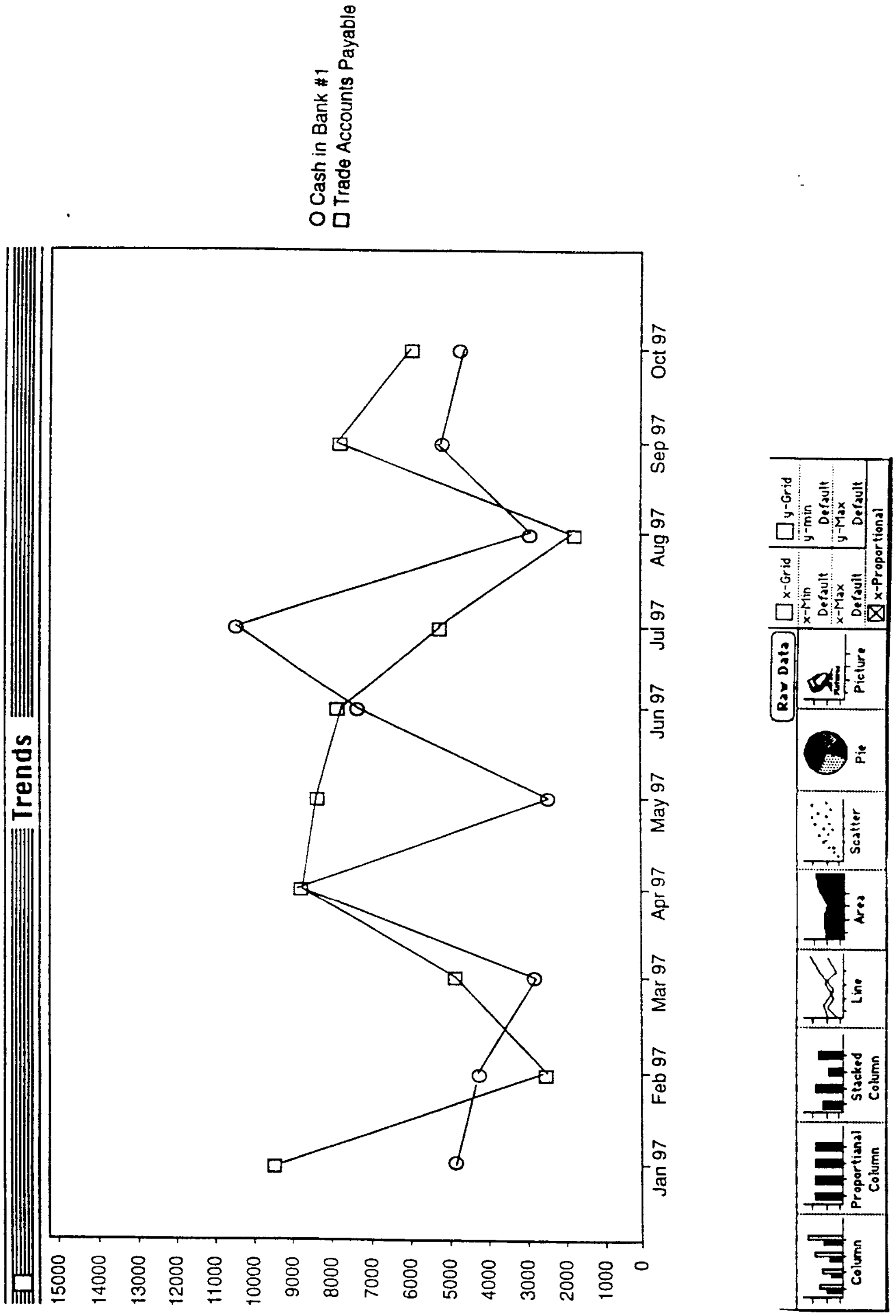


		Chart of Accounts
IE	7440	Misc. Expenses
IP	4070	Misc. Income
BA	1220	Notes Receivable
BA	1620	Office Equipment
IE	7110	Office Expense
IE	6020	Officer wages
BA	1240	Other Receivables
IE	6110	Payroll Tax Expense
BL	2180	Payroll Tax Payable
BA	1520	Pepaid Fed. Corp. Tax
IE	7130	Postage and Courier Services
BA	1510	Prepaid Expense
BA	1530	Prepaid Franchise Tax
BS	3900	Prior Year's Retained Earnings
IP	5020	Purchase Discount
IP	4090	Shipping and Handling
IE	9010	State Income Tax Expense
BL	2360	State Income Tax Payable
IE	7140	Stationary and Supplies
IE	7220	Taxes - Others
IE	8150	Taxes - Penalty
IE	7030	Telephone
BA	1210	Trade Acct Receivables
IE	7350	Travel
IE	7020	Utilities
BA	1640	Vehicles

n Bank #1	Trade Accounts Payable
.00	2,508.00
.00	4,624.00
.00	8,699.00
.00	8,183.00
.00	7,378.00

FIG. 112B



☐ x-Grid
x-Min Default
x-Max Default
☐ y-Grid
y-min Default
y-Max Default
☒ x-Proportional

FIG. 113

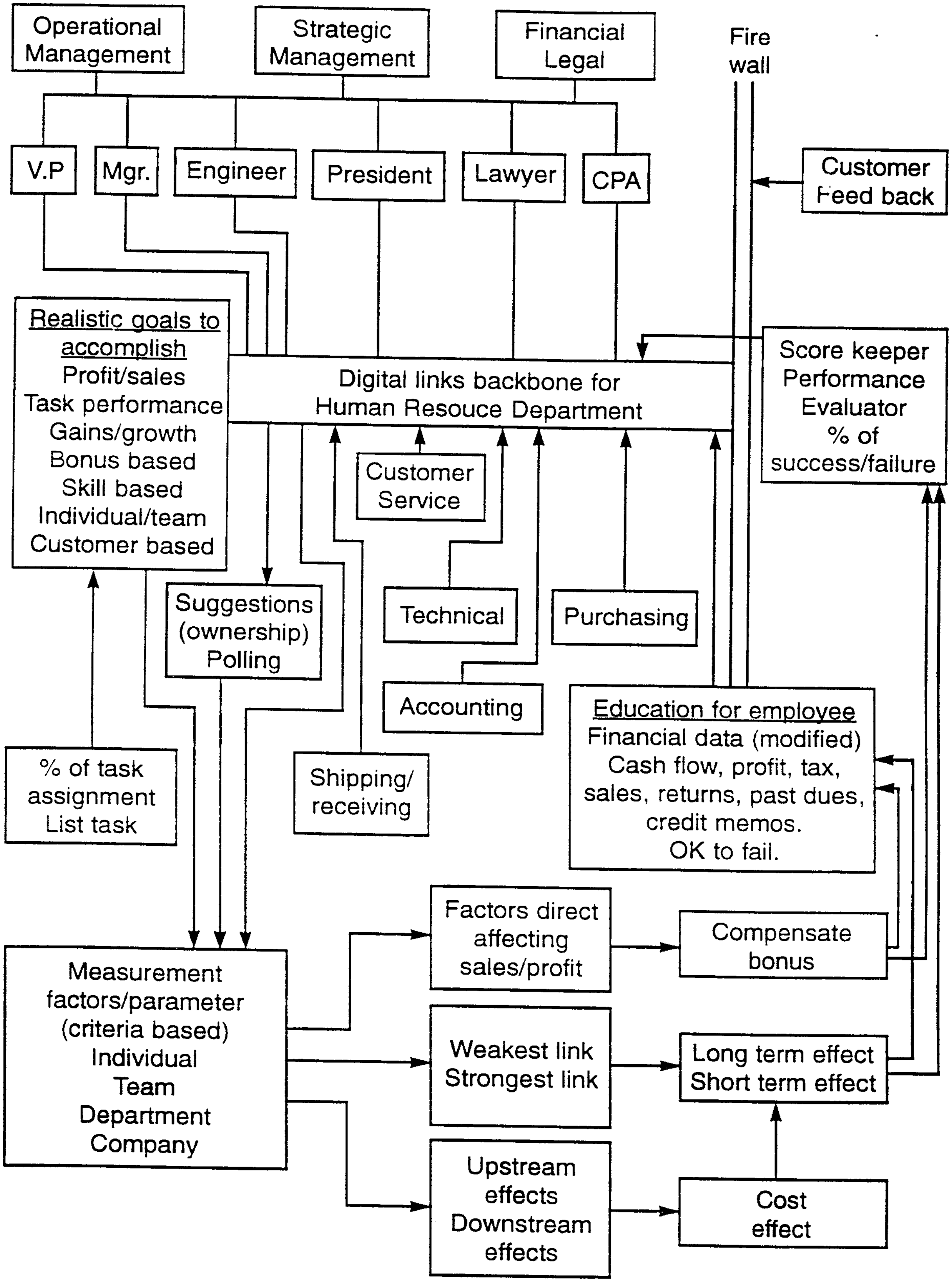
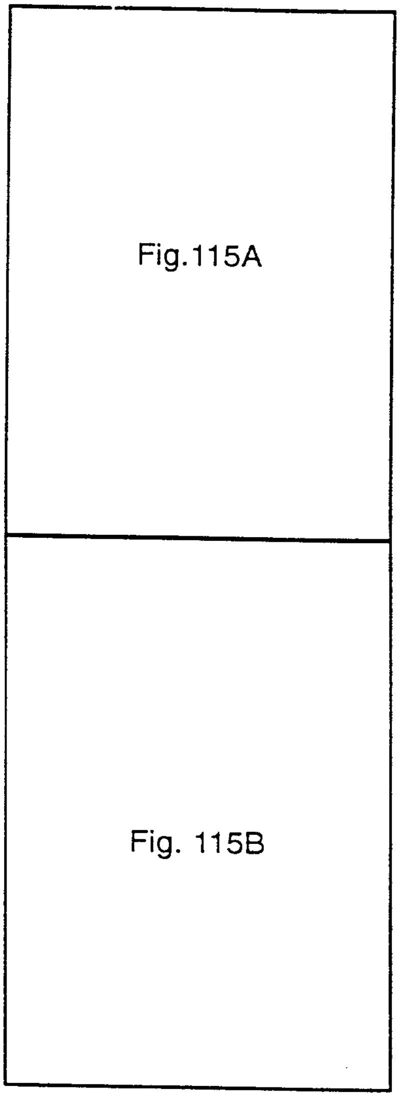

Operational Management
Strategic Management
Financial Legal
Fire wall
V.P
Mgr.
Engineer
President
Lawyer
CPA
Customer Feed back
Realistic goals to accomplish
Profit/sales
Task performance
Gains/growth
Bonus based
Skill based
Individual/team
Customer based
Digital links backbone for Human Resouce Department
Score keeper Performance Evaluator % of success/failure
Customer Service
Suggestions (ownership) Polling
Technical
Purchasing
Accounting
% of task assignment List task
Shipping/ receiving
Education for employee
Financial data (modified)
Cash flow, profit, tax, sales, returns, past dues, credit memos.
OK to fail.
Measurement factors/parameter (criteria based)
Individual
Team
Department
Company
Factors direct affecting sales/profit
Compensate bonus
Weakest link Strongest link
Long term effect Short term effect
Upstream effects Downstream effects
Cost effect

FIG.114

Fig. 115



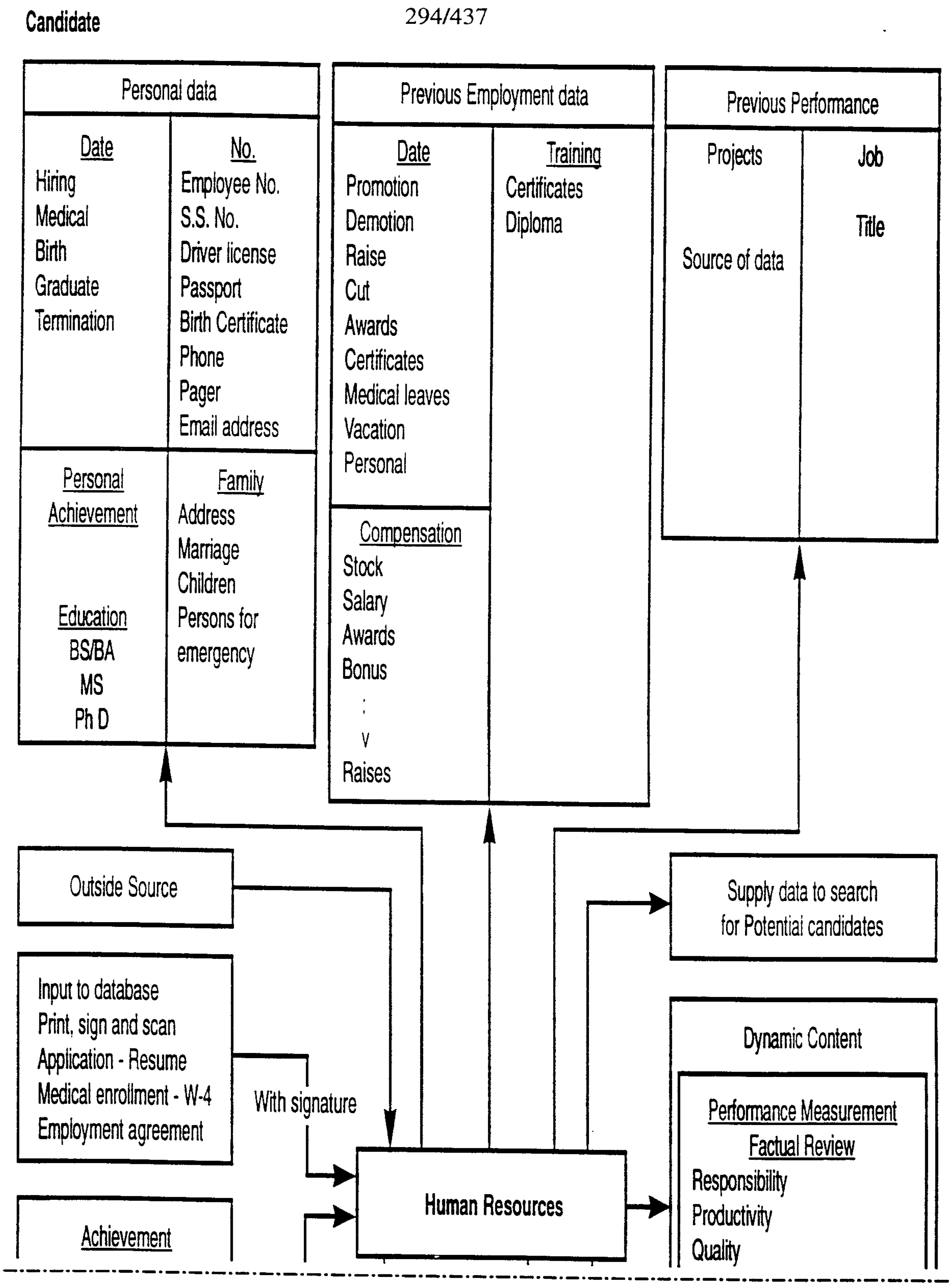

Candidate
Personal data
Date
Hiring
Medical
Birth
Graduate
Termination
No.
Employee No.
S.S. No.
Driver license
Passport
Birth Certificate
Phone
Pager
Email address
Personal Achievement
Education
BS/BA
MS
Ph D
Family
Address
Marriage
Children
Persons for emergency
Previous Employment data
Date
Promotion
Demotion
Raise
Cut
Awards
Certificates
Medical leaves
Vacation
Personal
Compensation
Stock
Salary
Awards
Bonus
Raises
Training
Certificates
Diploma
Previous Performance
Projects
Source of data
Job
Title
Outside Source
Input to database
Print, sign and scan
Application - Resume
Medical enrollment - W-4
Employment agreement
With signature
Achievement
Human Resources
Supply data to search for Potential candidates
Dynamic Content
Performance Measurement
Factual Review
Responsibility
Productivity
Quality

FIG.115A

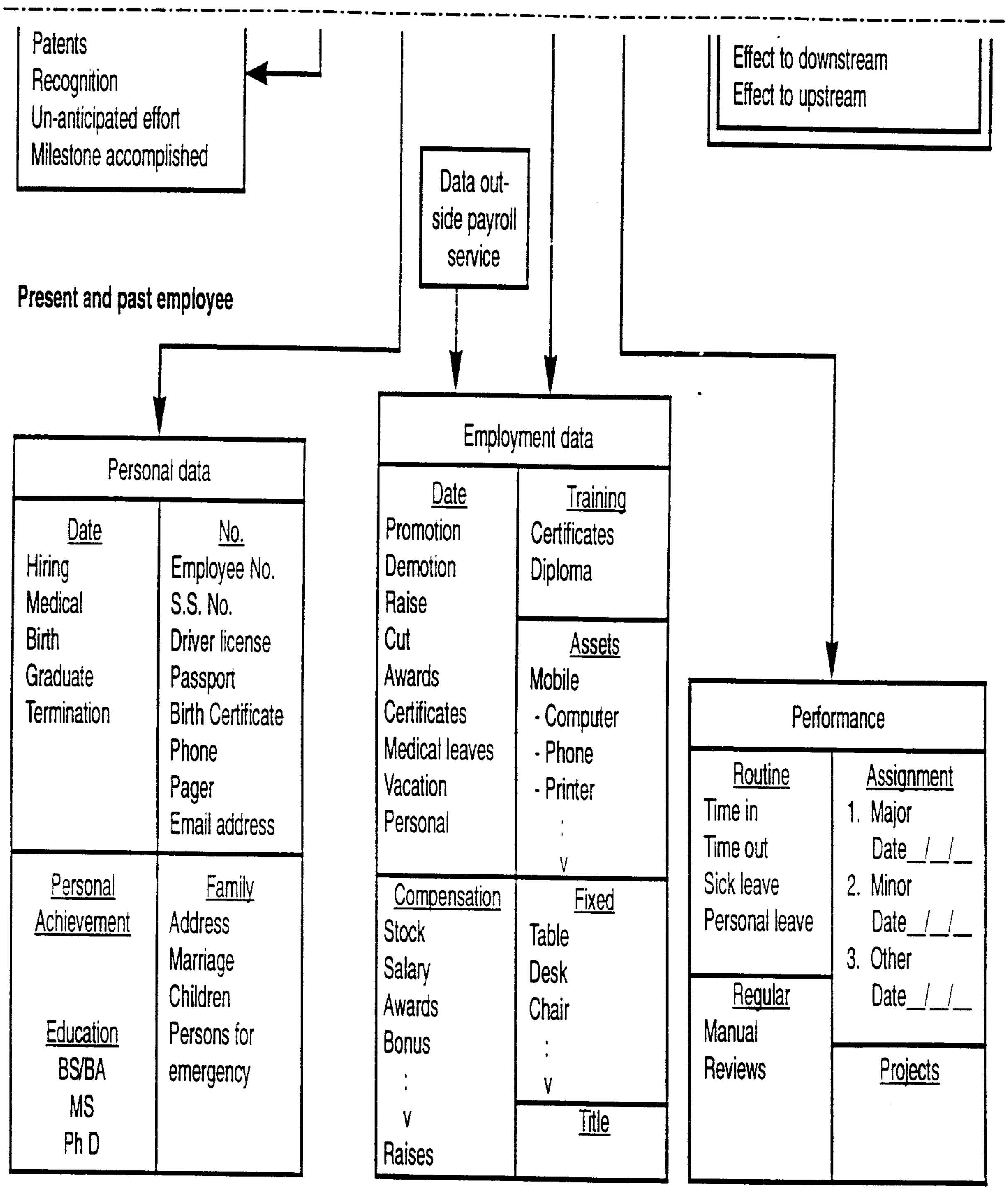
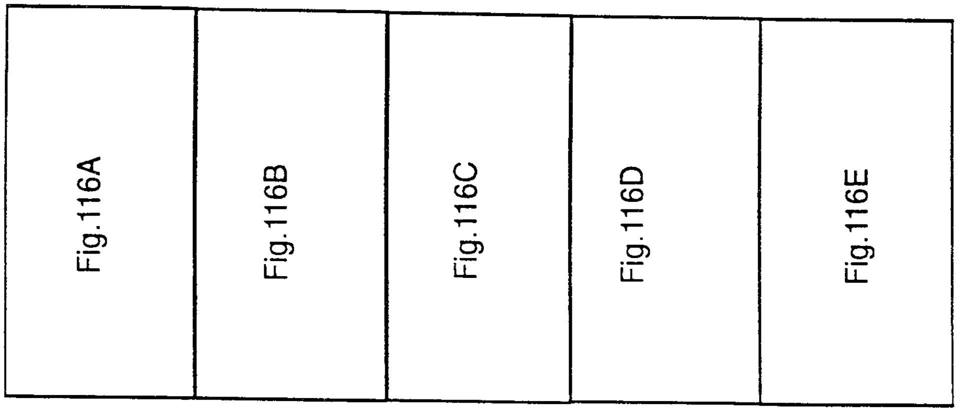

Patents
Recognition
Un-anticipated effort
Milestone accomplished
Effect to downstream
Effect to upstream
Data out-side payroll service
Present and past employee
Personal data
Date
Hiring
Medical
Birth
Graduate
Termination
No.
Employee No.
S.S. No.
Driver license
Passport
Birth Certificate
Phone
Pager
Email address
Personal Achievement
Education
BS/BA
MS
Ph D
Family
Address
Marriage
Children
Persons for emergency
Employment data
Date
Promotion
Demotion
Raise
Cut
Awards
Certificates
Medical leaves
Vacation
Personal
Training
Certificates
Diploma
Assets
Mobile
- Computer
- Phone
- Printer
:
v
Compensation
Stock
Salary
Awards
Bonus
:
v
Raises
Fixed
Table
Desk
Chair
:
v
Title
Performance
Routine
Time in
Time out
Sick leave
Personal leave
Regular
Manual
Reviews
Assignment
1. Major
Date_/_/_
2. Minor
Date_/_/_
3. Other
Date_/_/_
Projects

FIG.115B

Fig. 116



Algorithm of Activity Data

Major Measuring Category								
Assignment	Qty by period	$ by period	Time between date	Responsible Dept.	RMA		Upstream	Downstream
					Day between date	Amt. by period		
Quotes	No., No. convert to MWS	Total amt. Pcost,Scost Install cost Freight cost	Create date Post date Quote date	Sales	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Customer	Customer Service
MWS	Total iems, Total amt	Total amt., Pcost, Scost, Install cost, Freight cost	Create date Reviewed post date	Sales Customer Service	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Customer Service	Purchase
Cust.Inv.	Total Inv., Total RMA, # of 30days, 45 days,	Total amt. Sprice, Install cost,	Issue date Printed date Paid date	Account Receivable Shipping	V. rec.date V. Ship C.rec.date C. ship	Exp. V.cr. V. cr. C. cr.	Purchase	A/R

FIG.116A

	etc.	Freight, Tax	Input		Create date Fax	Rec. cr		
Ven.Inv.	Total Inv #, Past due # of invoices - 30, 60, 90 days	Total amt., Vcost, Pcost, Freight, Tax	Received from ven. Ship to cust. Due date Paid date Approved Scheduled Reviewed Entry Create date	Account Payable Engineering	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Purchase	A/P
Cust.Cr.	Total items Credit memo	Total cr., Sprice, Pcost, Restock, Tax	Create date Issue date	Account Receivable Sales Engineering	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Sales	A/R
Ven.Cr.	Total items Ven.cr.	Total ven. cr., Pcost, Vcost,	Ven.cr. memo Rcv'd date	Account Payable	V. rec.date C.rec.date V. Ship C. ship	Exp. V.cr. V. cr.	Sales	A/P

FIG.116B

		Restock, Tax	Payment date	Sales	Create date Fax	C. cr. Rec. cr		
Engineering Install Assembly Test	Items/system Total MWS	Total Install cost, Install price, Ven.Install cost	Install date Completed Test date	Engineering/ Install/ Assembly/ Test	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Purchase Sales Rcv	Ship
Ship Receive	Total Boxes Total Items	Total freight amount	Receive date Ship date	Ship/ Receive/ Inside Sales	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Purchase	Customer
Ven. Payment	Ven. Invoices V.cr.memo Exp.cr.memo	Total amount, Total credit, Total check	Ven.payment Check Post Approve	Account Payable	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Vendor Purchase	A/P
					V. rec.date			

FIG.116C

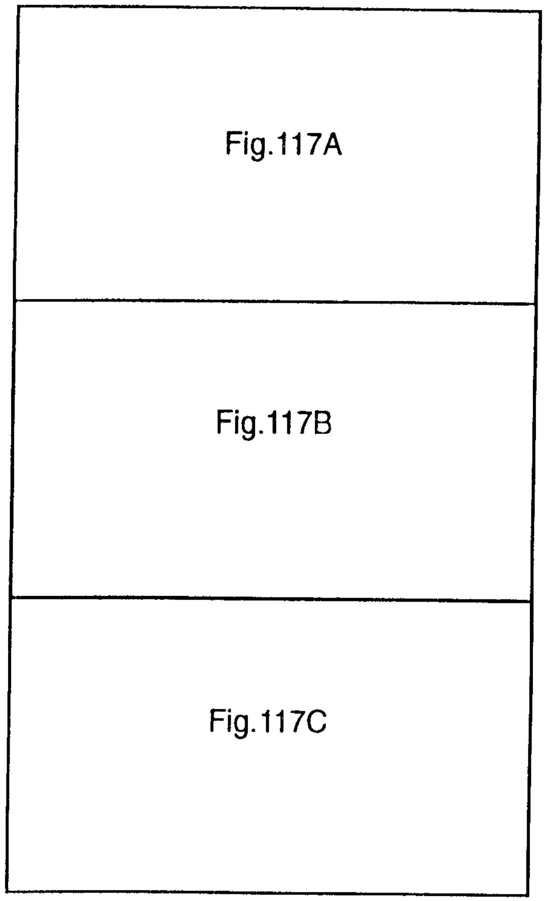
Cust. Payment	Cust. Invoices C.cr.memo	Total amount	C.payment Check Post Approve	Account Receivable	V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Ship Sales	A/R
RMA	Total RMA items	Total RMA credit	RMA V. rcv'd RMA V. ship RMA C. rcv'd RMA C. ship	CSR Sales Ship/Rcv Engineering	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Sales Rcv	A/P A/R
Customer	# of customer	Total $ Total $ per cust. % of Avg. of margin	Duration/customer Rate of growth/ period	Sales Account	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Sales	Purchase Customer Service
Vendor	# of vendor	Unclear inv. Inv. $ Clear inv., %	Duration/customer Rate of growth/ period	Sales Account	V. rec.date V. Ship C.rec.date C. ship Create date	Exp. V.cr. V. cr. C. cr. Rec. cr	Purchase	Ship/Rcv Install/ Engineering

FIG.116D

					Fax			
Purchase	Total items Total MWS B/O items	Scost Pcost	Order date, MWS date, Rec'd date, B/O rec'd date, Item order date	A/P Buyer Sales	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Sales	Ship/Rcv Install/ Engineering
Commission/ earning	# of format	$ Rate of increase	$/period	Sales Purchasing	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	Vendor Customer Purchase	Customer Service
Financial	Total V. inv. Total C. inv	Total A/P Total A/R		Accounting Purchasing	V. rec.date V. Ship C.rec.date C. ship Create date Fax	Exp. V.cr. V. cr. C. cr. Rec. cr	NA	NA

FIG.116E

Fig. 117



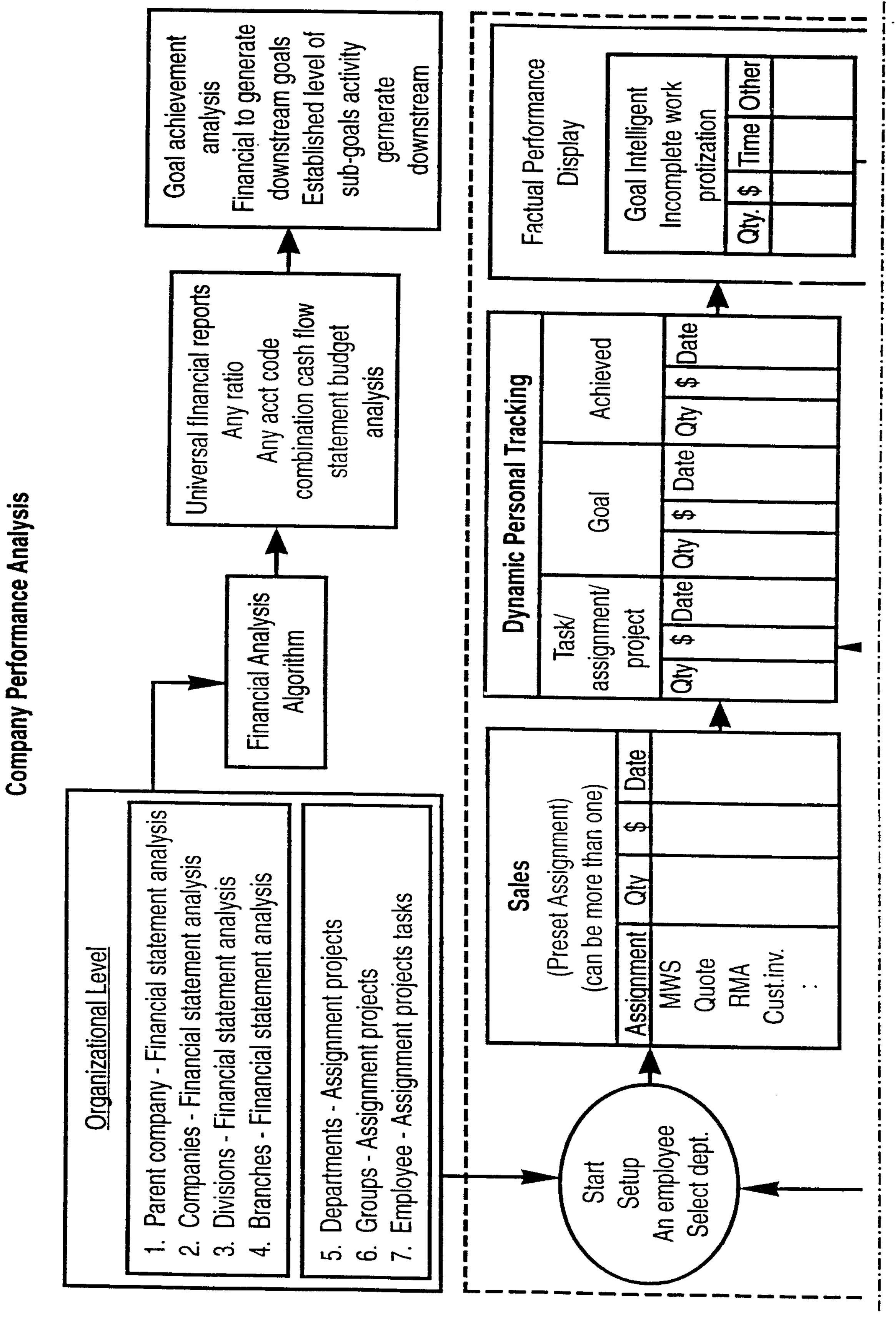

Company Performance Analysis
Organizational Level
1. Parent company - Financial statement analysis
2. Companies - Financial statement analysis
3. Divisions - Financial statement analysis
4. Branches - Financial statement analysis
5. Departments - Assignment projects
6. Groups - Assignment projects
7. Employee - Assignment projects tasks
Financial Analysis Algorithm
Universal financial reports
Any ratio
Any acct code
combination cash flow
statement budget
analysis
Goal achievement
analysis
Financial to generate
downstream goals
Established level of
sub-goals activity
gernerate
downstream
Start
Setup
An employee
Select dept.
Sales
(Preset Assignment)
(can be more than one)
Assignment
Qty
$
Date
MWS
Quote
RMA
Cust.inv.
:
Dynamic Personal Tracking
Task/
assignment/
project
Goal
Achieved
Qty
$
Date
Qty
$
Date
Qty
$
Date
Factual Performance
Display
Goal Intelligent
Incomplete work
protization
Qty.
$
Time
Other

FIG.117A

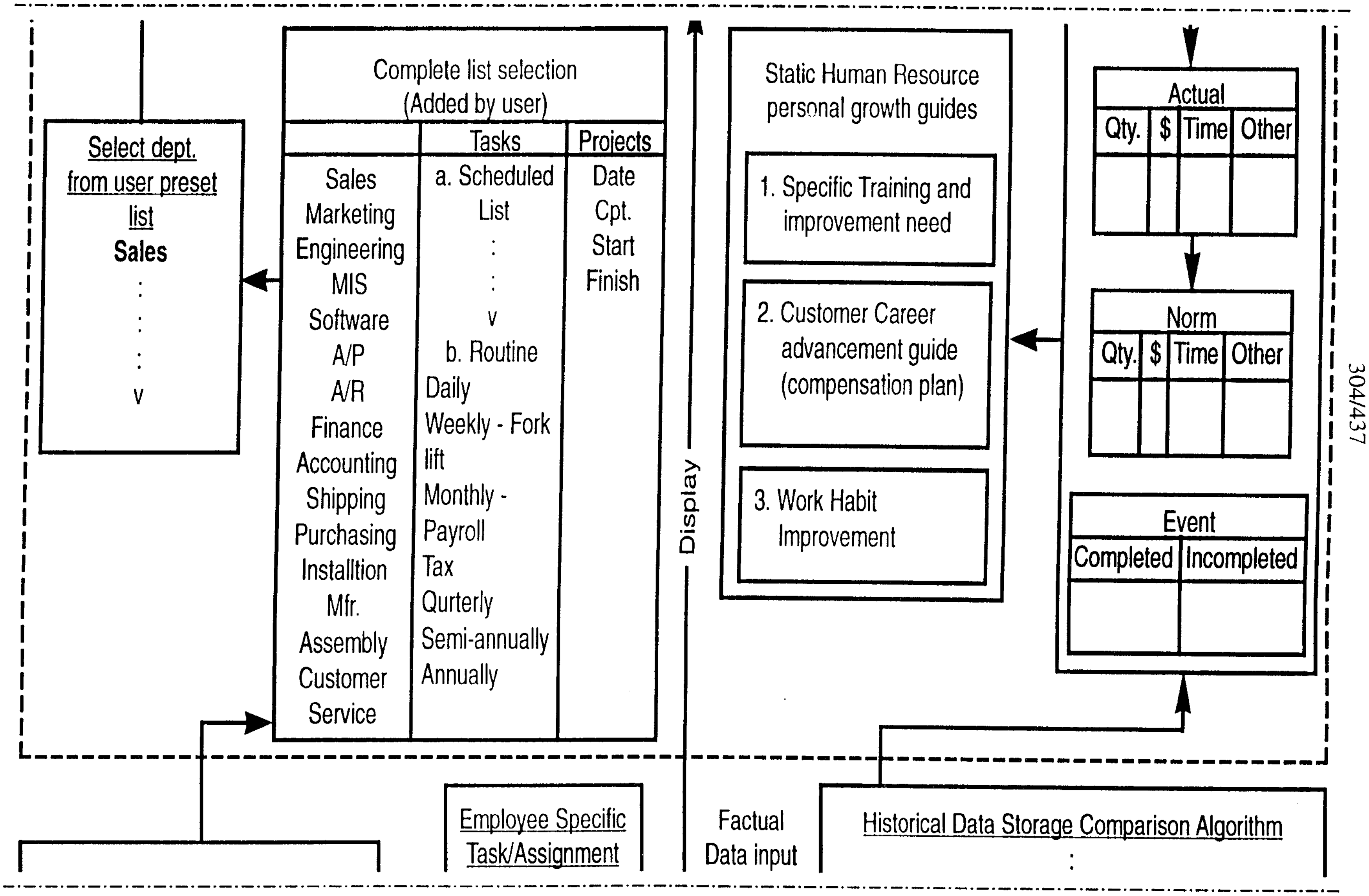

Select dept.
from user preset
list
Sales
:
:
:
v
Complete list selection
(Added by user)
Tasks
Projects
Sales
Marketing
Engineering
MIS
Software
A/P
A/R
Finance
Accounting
Shipping
Purchasing
Installtion
Mfr.
Assembly
Customer
Service
a. Scheduled
List
:
:
v
b. Routine
Daily
Weekly - Fork
lift
Monthly -
Payroll
Tax
Qurterly
Semi-annually
Annually
Date
Cpt.
Start
Finish
Display
Static Human Resource
personal growth guides
1. Specific Training and
improvement need
2. Customer Career
advancement guide
(compensation plan)
3. Work Habit
Improvement
Actual
Qty.
$
Time
Other
Norm
Qty.
$
Time
Other
Event
Completed
Incompleted
Employee Specific
Task/Assignment
Factual
Data input
Historical Data Storage Comparison Algorithm
:

FIG.117B

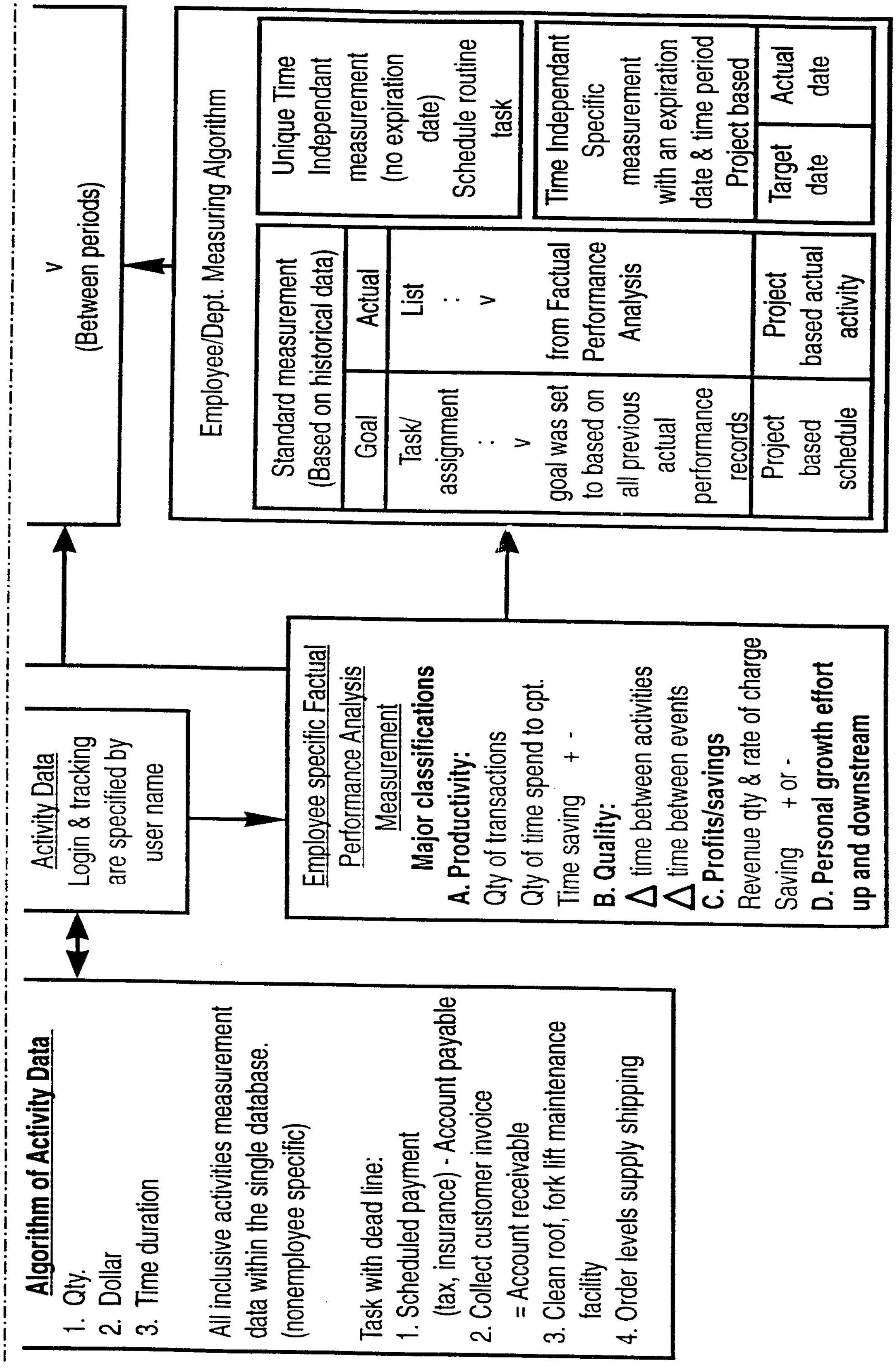

Algorithm of Activity Data
1. Qty.
2. Dollar
3. Time duration
All inclusive activities measurement data within the single database. (nonemployee specific)
Task with dead line:
1. Scheduled payment (tax, insurance) - Account payable
2. Collect customer invoice = Account receivable
3. Clean roof, fork lift maintenance facility
4. Order levels supply shipping
Activity Data
Login & tracking are specified by user name
Employee specific Factual Performance Analysis Measurement
Major classifications
A. Productivity:
Qty of transactions
Qty of time spend to cpt.
Time saving + -
B. Quality:
Δ time between activities
Δ time between events
C. Profits/savings
Revenue qty & rate of charge
Saving + or -
D. Personal growth effort up and downstream
v
(Between periods)
Employee/Dept. Measuring Algorithm
Standard measurement (Based on historical data)
Goal
Actual
Task/ assignment : v
goal was set to based on all previous actual performance records
List : v
from Factual Performance Analysis
Project based schedule
Project based actual activity
Unique Time Independant measurement (no expiration date) Schedule routine task
Time Independant Specific measurement with an expiration date & time period Project based
Target date
Actual date

FIG.117C

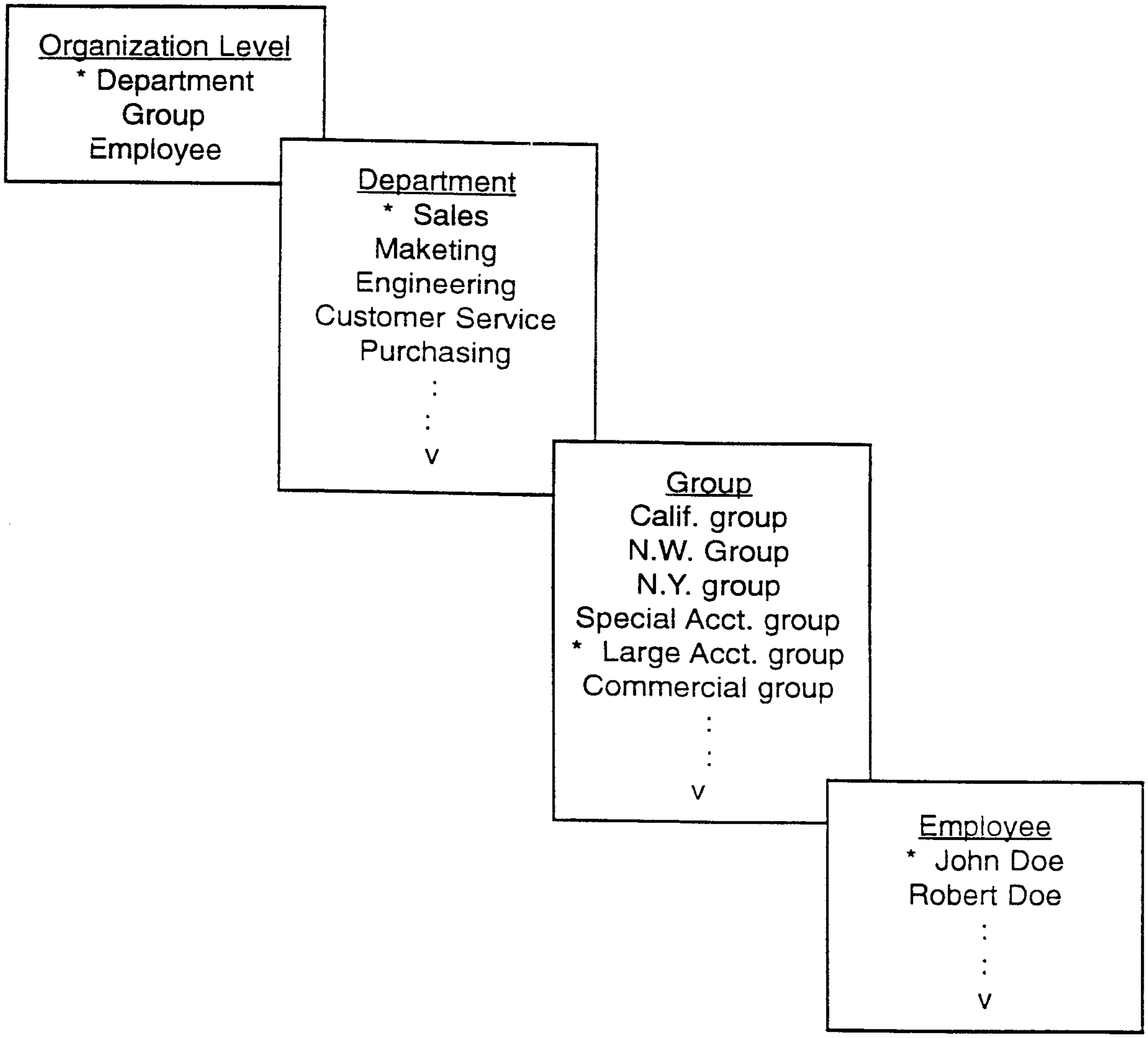
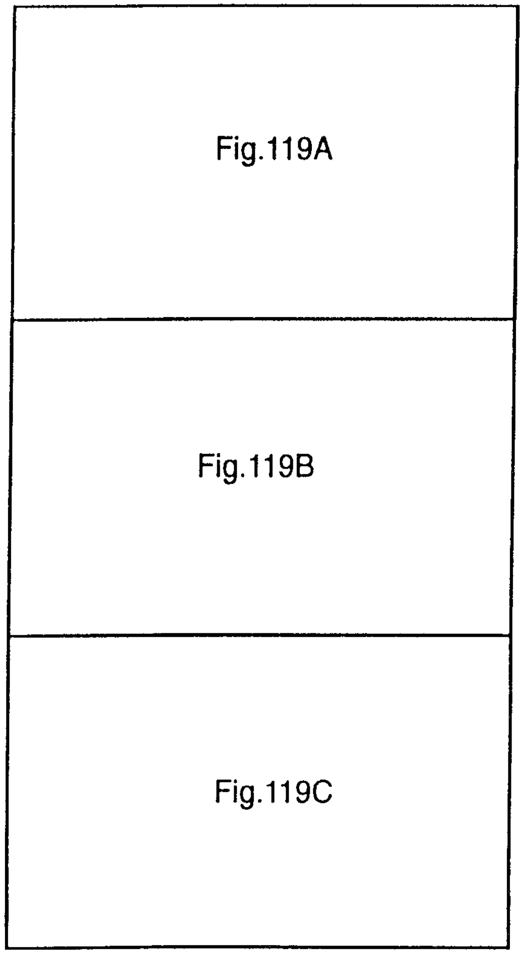

Organization Level
* Department
Group
Employee
Department
* Sales
Maketing
Engineering
Customer Service
Purchasing
:
:
v
Group
Calif. group
N.W. Group
N.Y. group
Special Acct. group
* Large Acct. group
Commercial group
:
:
v
Employee
* John Doe
Robert Doe
:
:
v

FIG.118

Fig. 119



Factual Performance Analysis

Single Period

Sales department
Large Acct group
John Doe

☐ Static data - double click for static personal data
☐ Per period (daily)(weekly)(monthly)(quarterly)

	Productivity (A)			Quality (B)		Profitability (C)	Upstream	Downstream
Measuring Parameter	Qty/period (A1)	$/period (A2)	% profit/period (A3)	Time period (B1)	Accounting C.Cr. memo (B2)	Gross Margin		
Quotes				PO date Quote date	NA	NA	Customer	Customer Service
MWS				Create date Review date	# of invoice /cr.memo	Commission earned Gross margin	Customer	Purchasing
RMA				Create date Cust. rec'd date	# RMA return for credit # RMA return for exchange	Restocking fee Partial vendor cr.memo	Inside Sales	Purchasing Receiving

FIG.119A

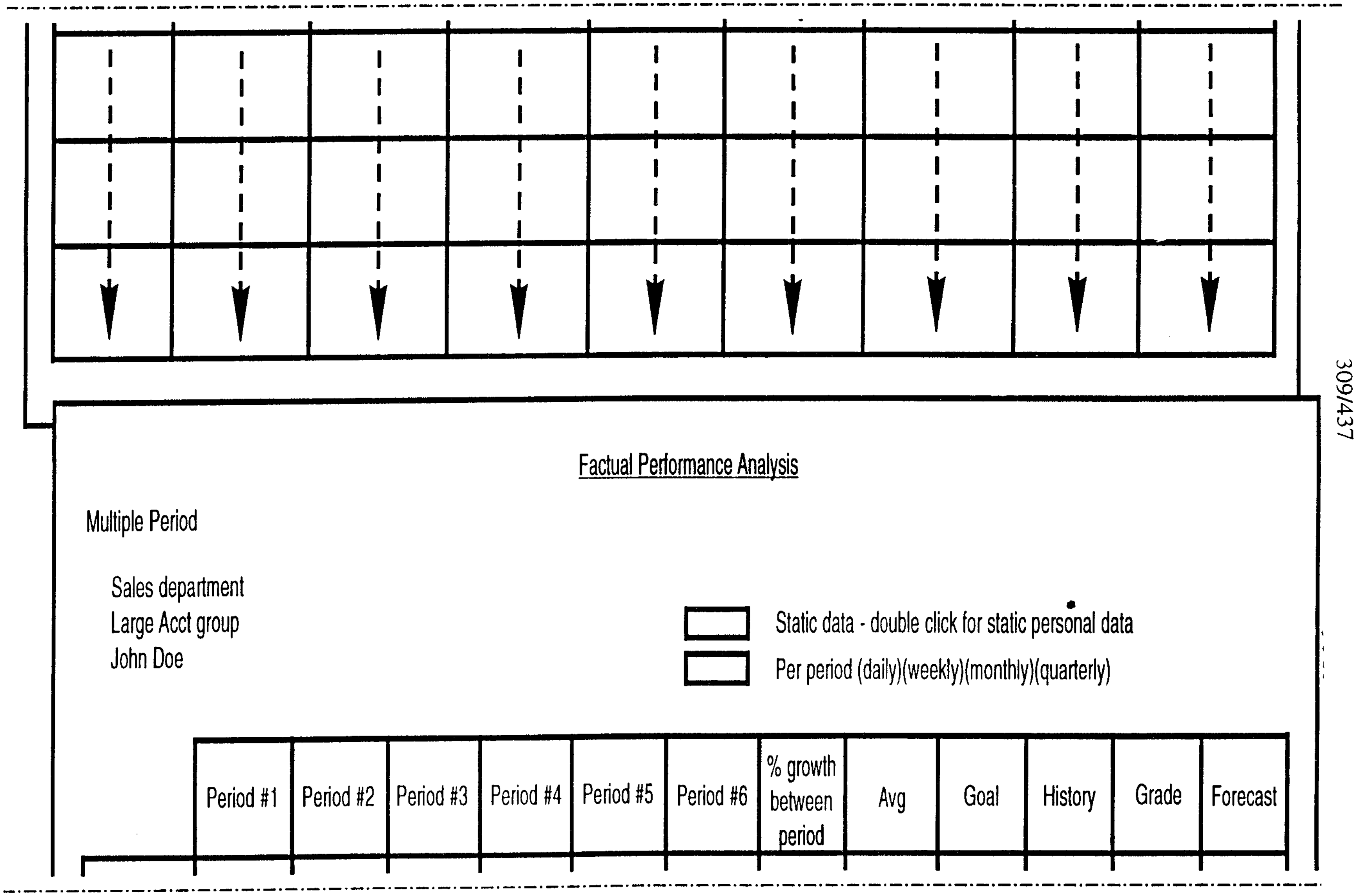

Factual Performance Analysis
Multiple Period
Sales department
Large Acct group
John Doe
Static data - double click for static personal data
Per period (daily)(weekly)(monthly)(quarterly)
Period #1
Period #2
Period #3
Period #4
Period #5
Period #6
% growth between period
Avg
Goal
History
Grade
Forecast

FIG.119B

Measuring Parameter	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C						
Quotes	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C						
MWS	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C						
RMA	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C						

Select: A1, A2, A3, B1, B2, C

FIG.119C

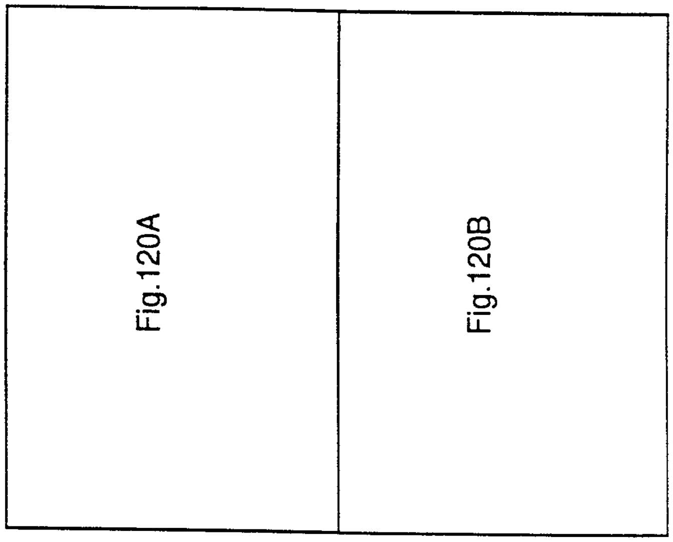
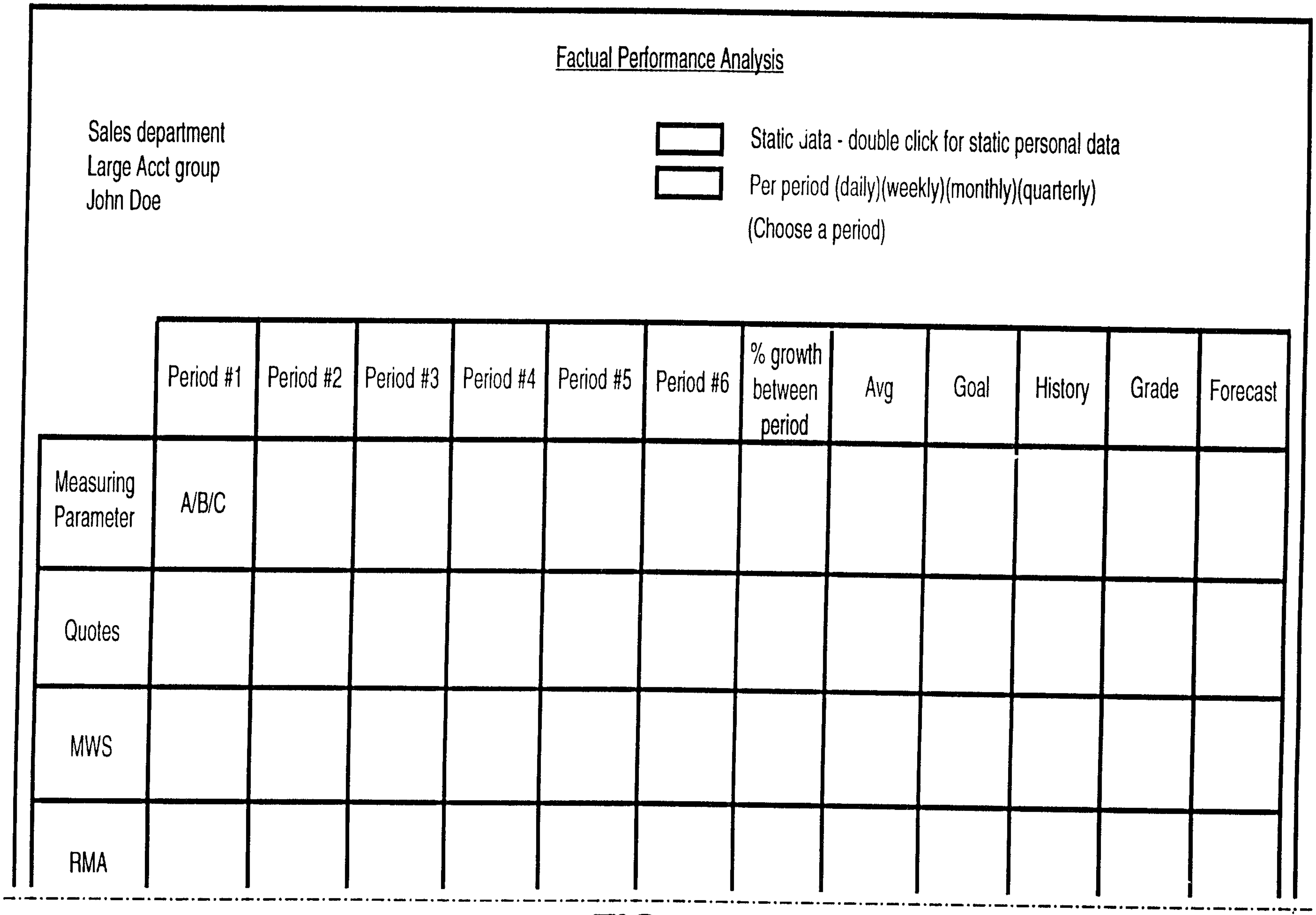


Fig. 120



Factual Performance Analysis

Sales department
Large Acct group
John Doe

☐ Static data - double click for static personal data
☐ Per period (daily)(weekly)(monthly)(quarterly)
(Choose a period)

	Period #1	Period #2	Period #3	Period #4	Period #5	Period #6	% growth between period	Avg	Goal	History	Grade	Forecast
Measuring Parameter	A/B/C											
Quotes												
MWS												
RMA												

FIG.120A

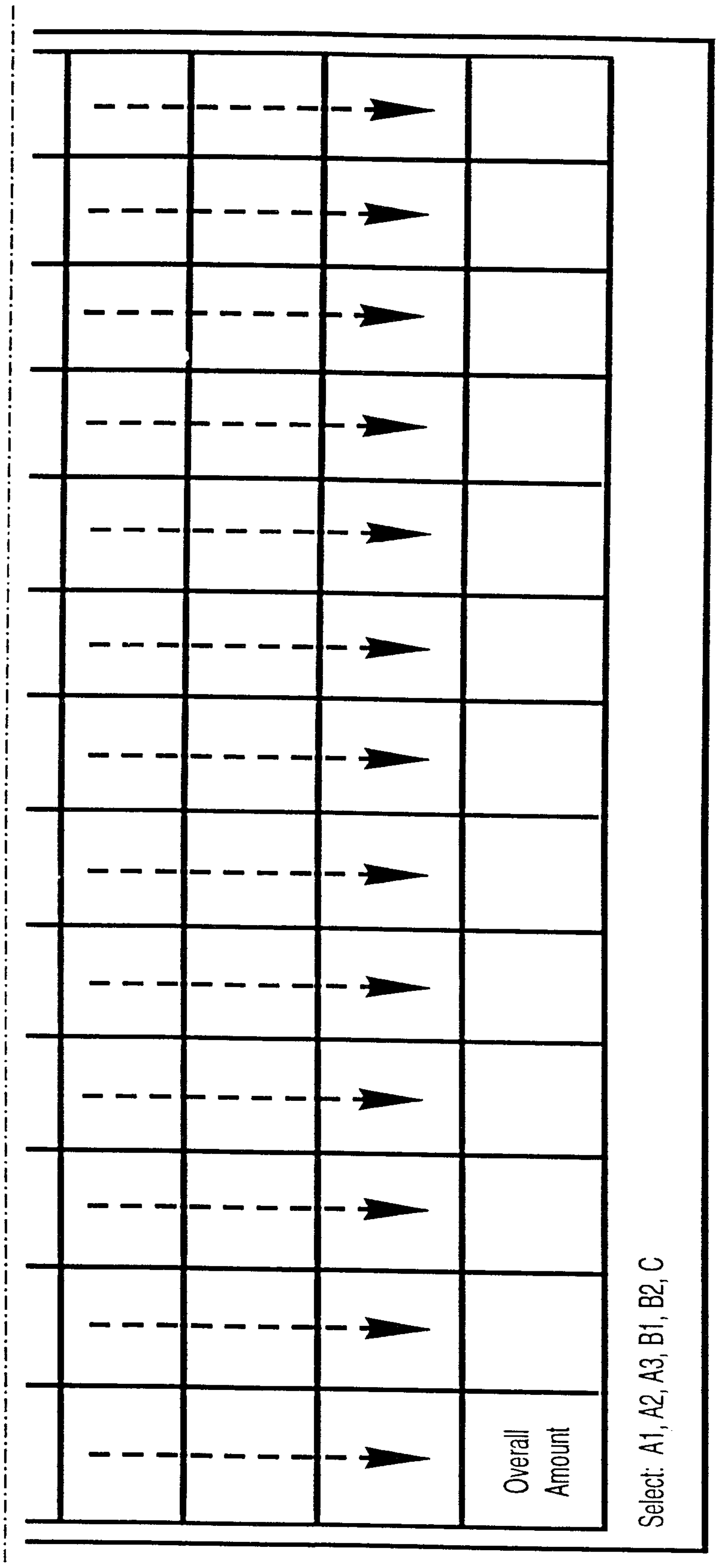
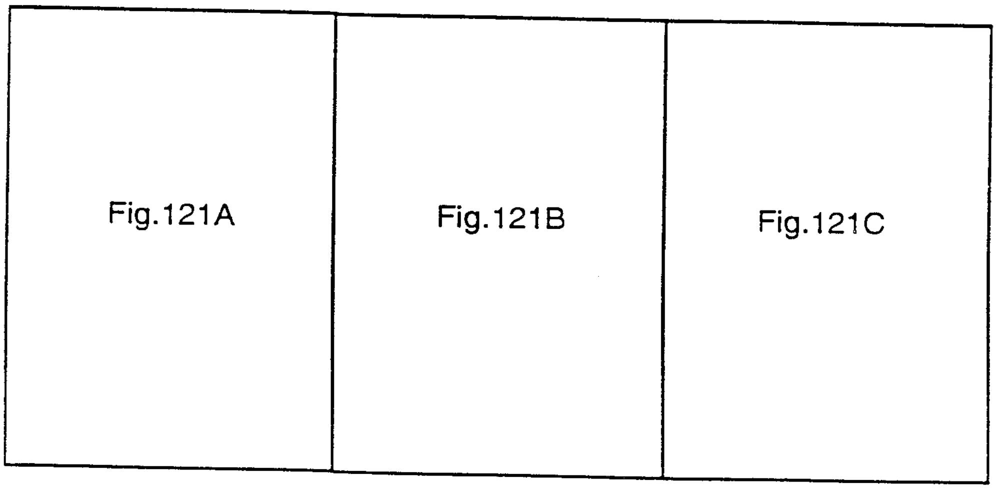
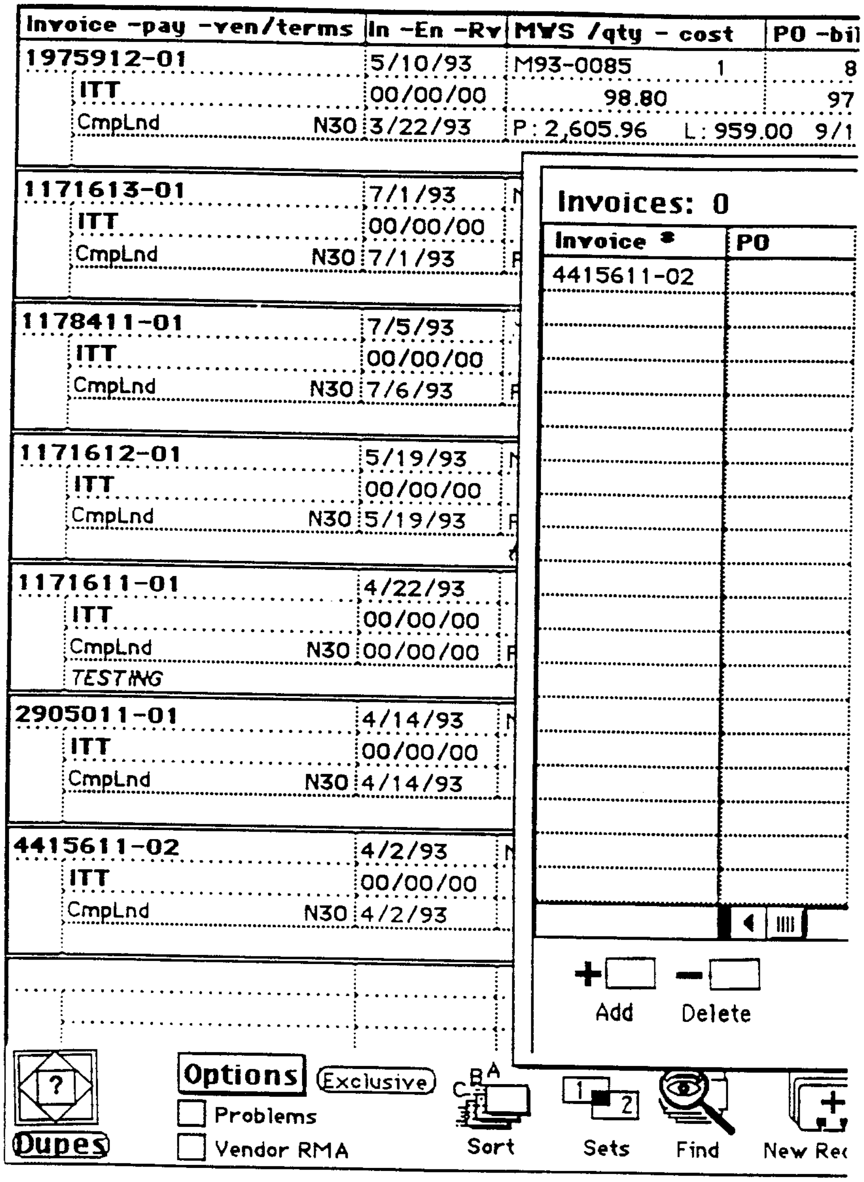


FIG.120B

Fig. 121





Invoice -pay -ven/terms	In -En -Rv	MVS /qty - cost	PO -bil
1975912-01	5/10/93	M93-0085 1	8
ITT	00/00/00	98.80	97
CmpLnd N30	3/22/93	P: 2,605.96 L: 959.00	9/1
1171613-01	7/1/93		
ITT	00/00/00		
CmpLnd N30	7/1/93		
1178411-01	7/5/93		
ITT	00/00/00		
CmpLnd N30	7/6/93		
1171612-01	5/19/93		
ITT	00/00/00		
CmpLnd N30	5/19/93		
1171611-01	4/22/93		
ITT	00/00/00		
CmpLnd N30	00/00/00		
TESTING			
2905011-01	4/14/93		
ITT	00/00/00		
CmpLnd N30	4/14/93		
4415611-02	4/2/93		
ITT	00/00/00		
CmpLnd N30	4/2/93		

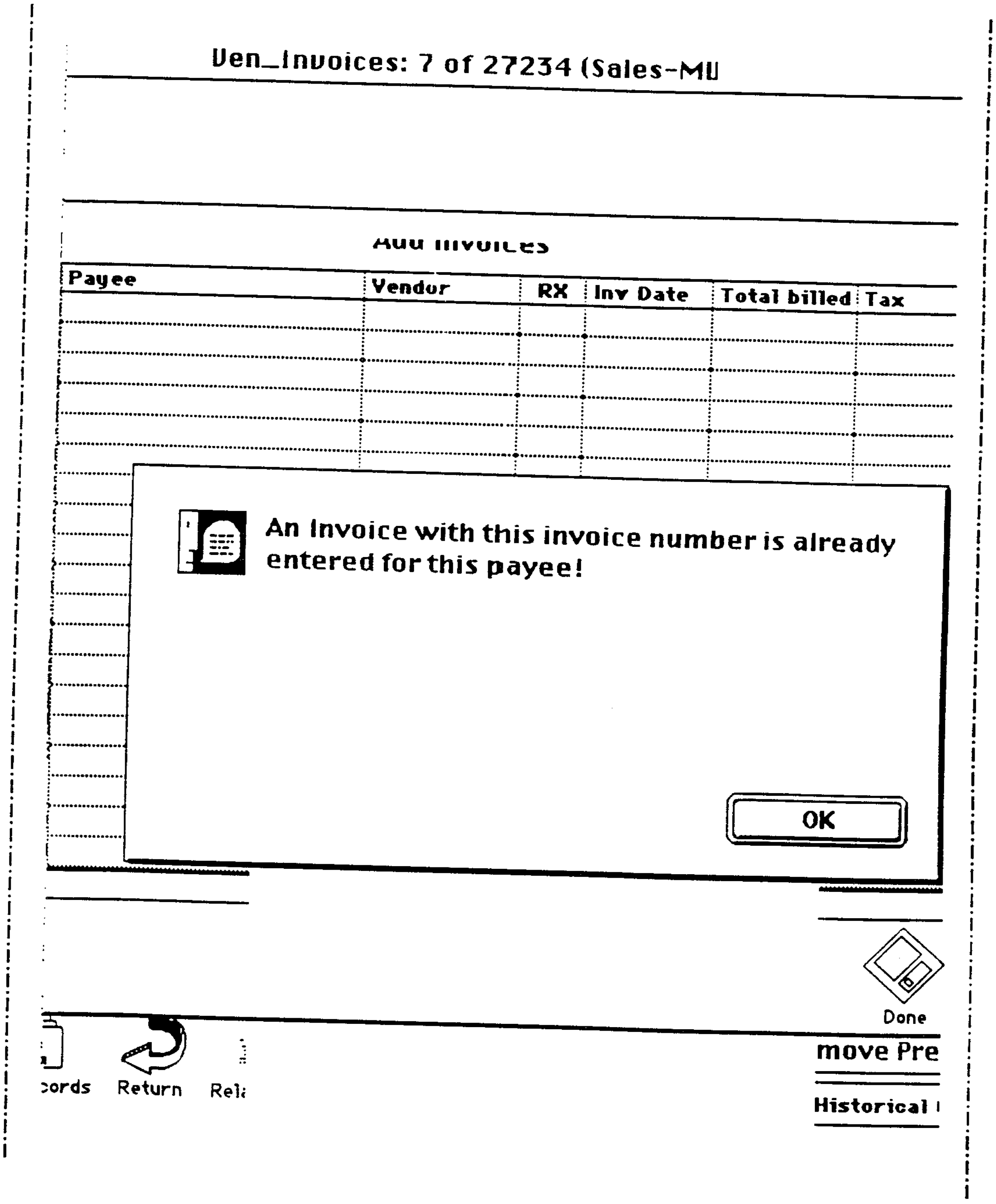
Invoices: 0

Invoice #	PO
4415611-02	

☐ Problems

☐ Vendor RMA

FIG. 121A



Ven_Invoices: 7 of 27234 (Sales-MU

An Invoice with this invoice number is already entered for this payee!

FIG. 121B

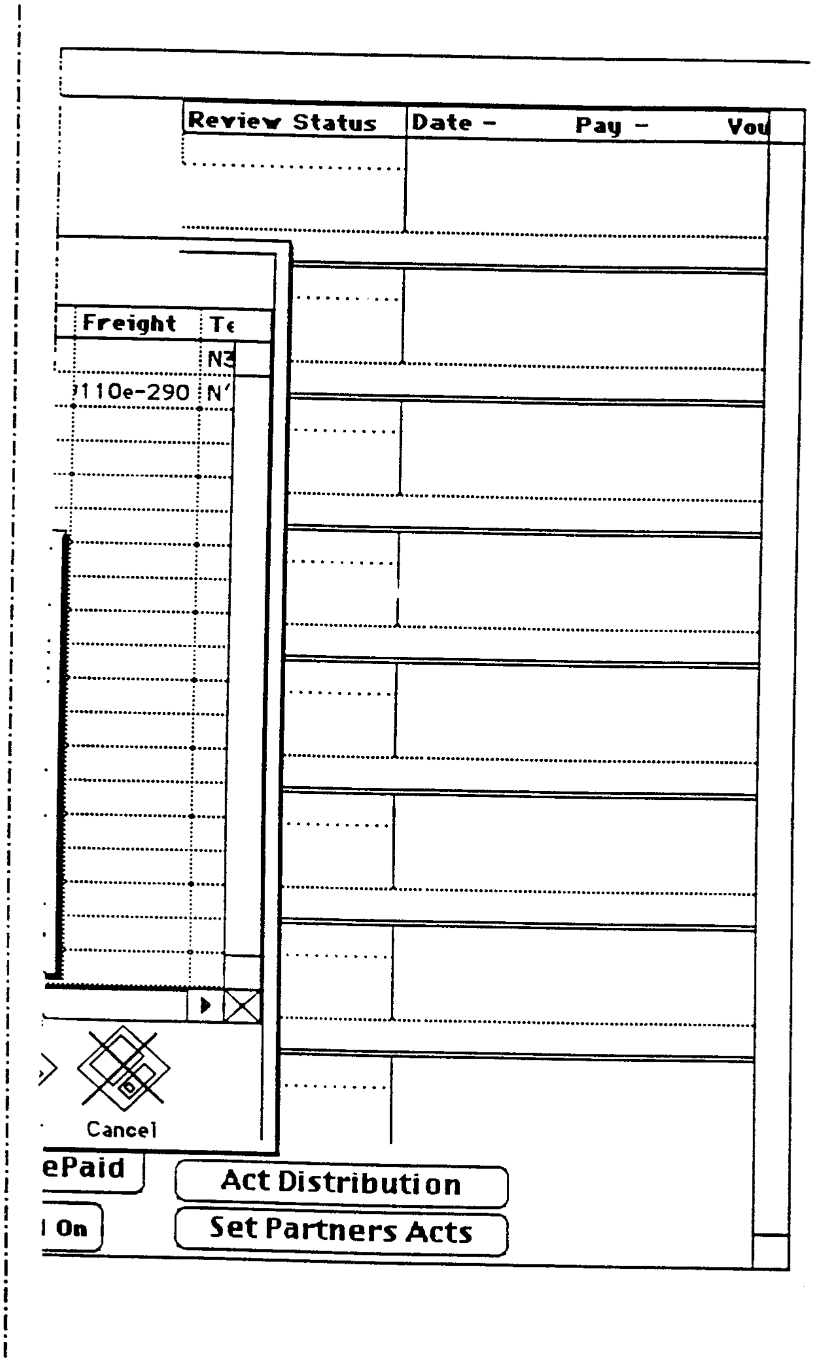
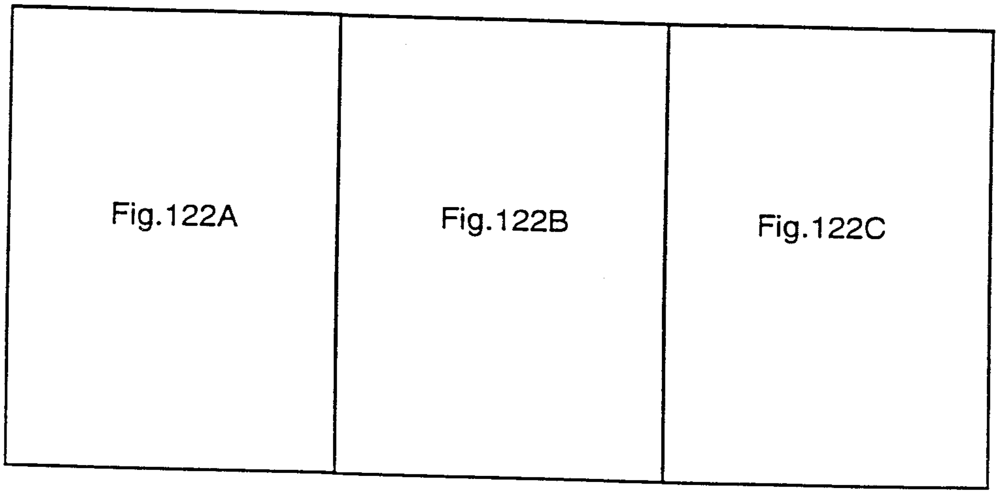
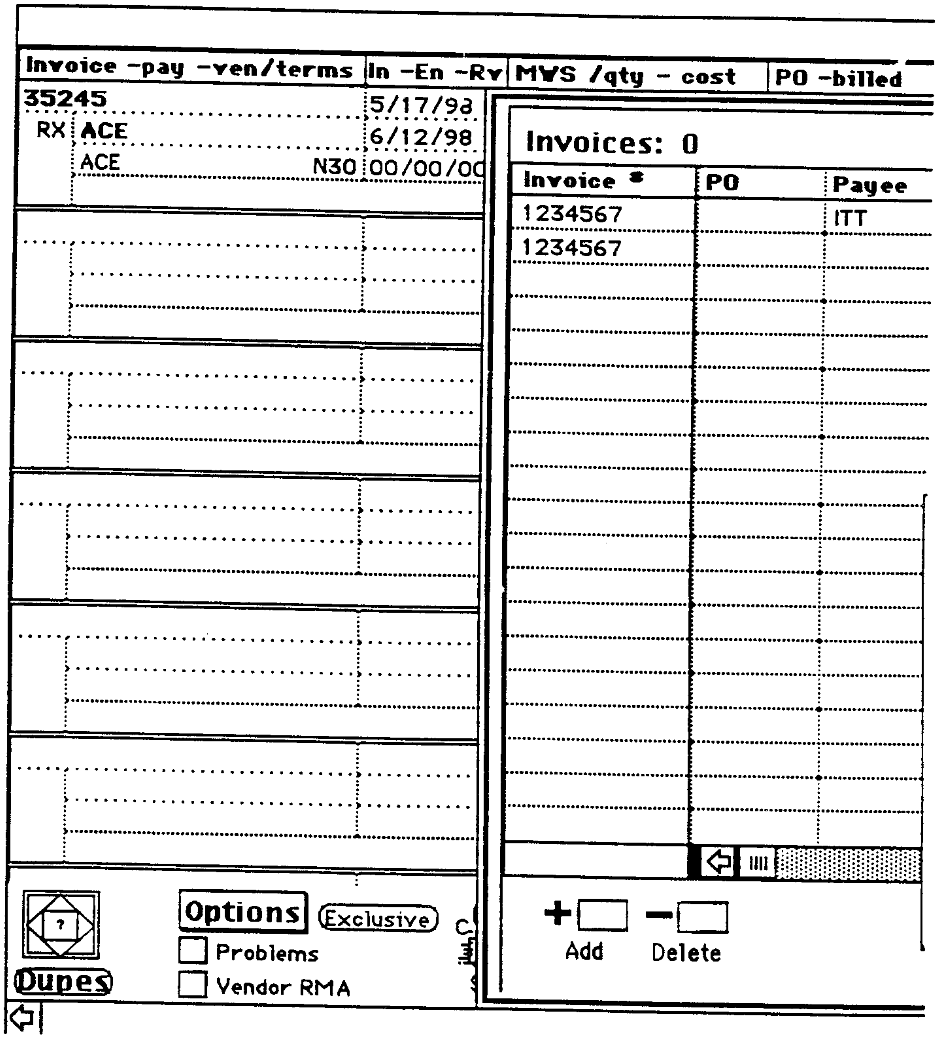

Review Status
Date –
Pay –
You
Freight
Te
N3
110e-290
N'
Cancel
ePaid
Act Distribution
On
Set Partners Acts

FIG. 121C

Fig. 122



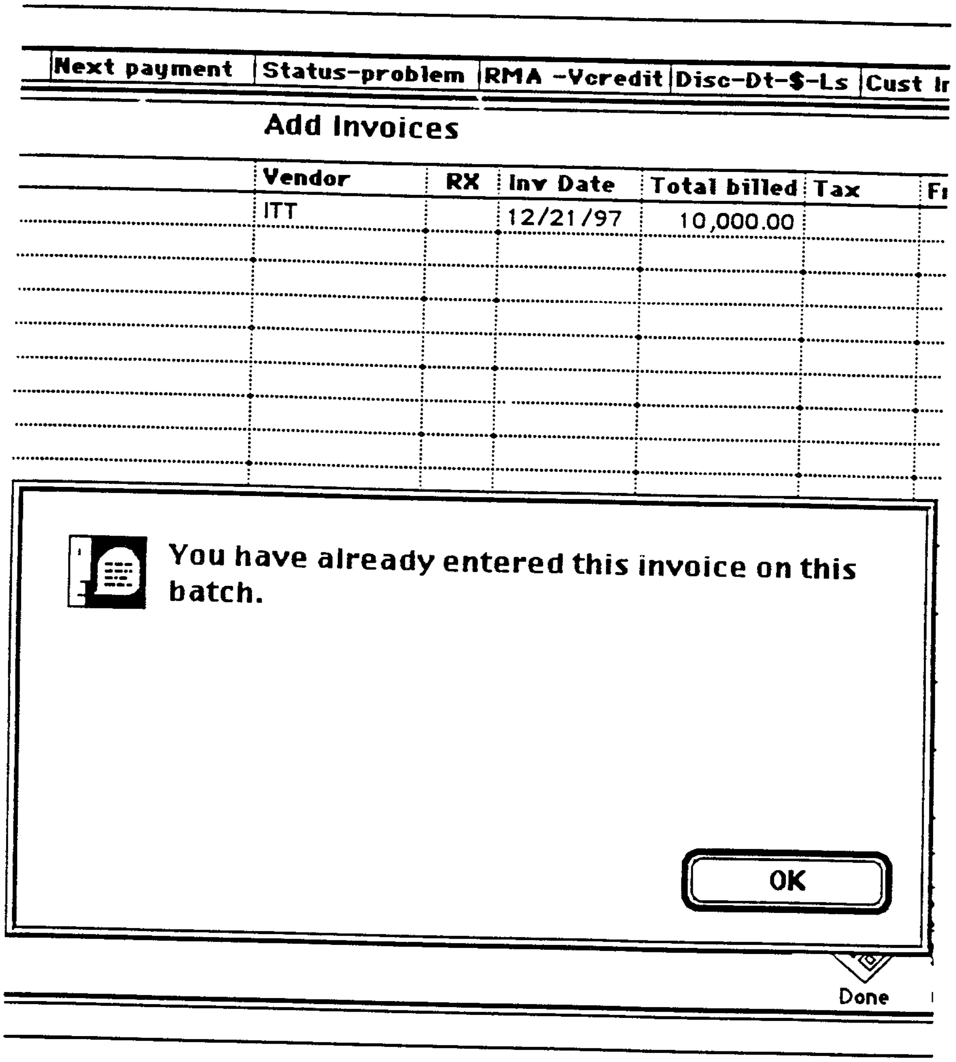


Invoice -pay -ven/terms			In -En -Rv	MVS /qty - cost	PO -billed
35245			5/17/98		
RX	ACE		6/12/98		
	ACE	N30	00/00/00		

Invoices: 0

Invoice #	PO	Payee
1234567		ITT
1234567		

FIG. 122A

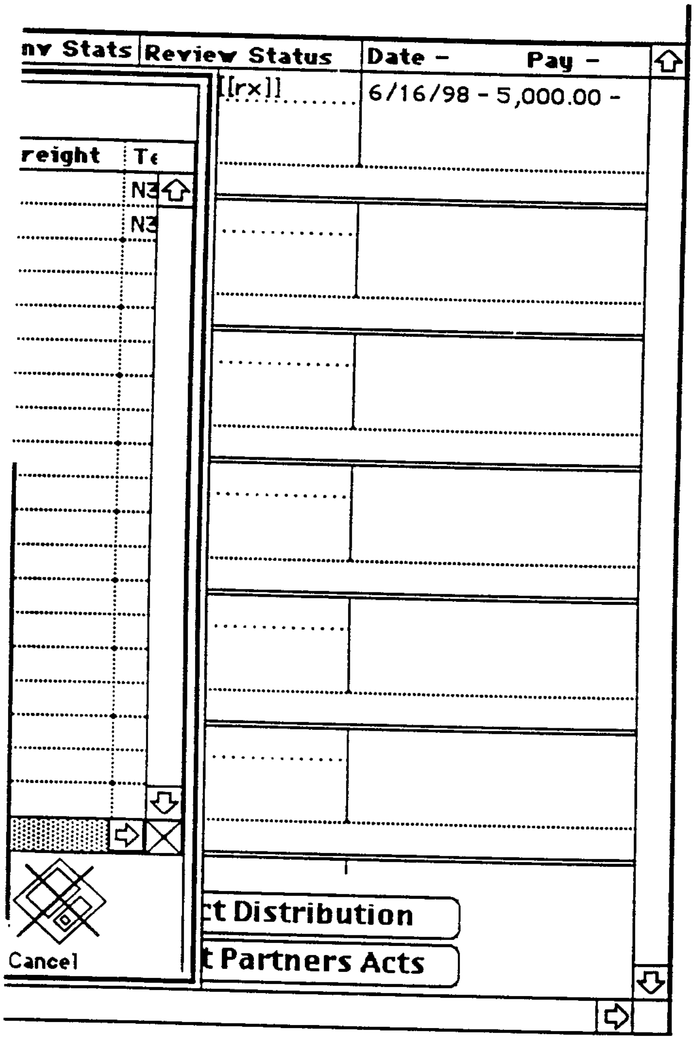


Add Invoices

Vendor	RX	Inv Date	Total billed	Tax	Fi
ITT		12/21/97	10,000.00		

You have already entered this invoice on this batch.

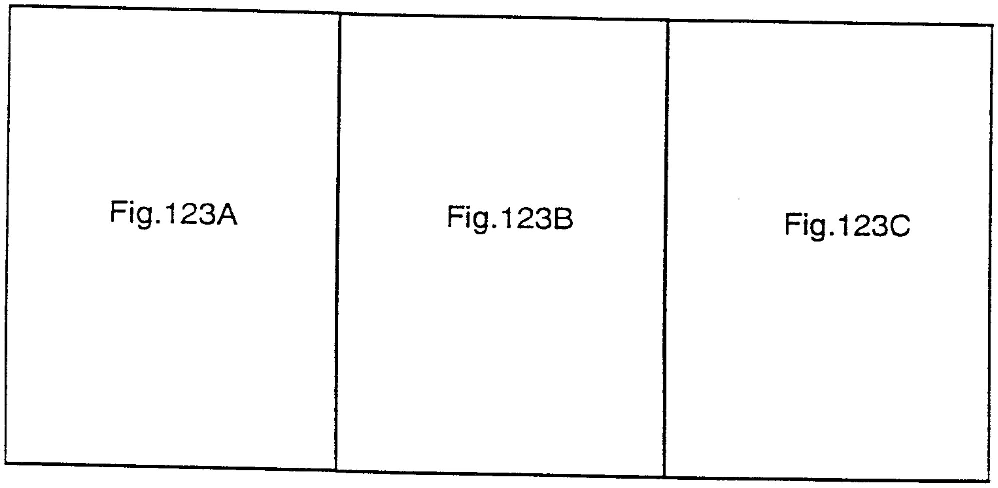
FIG. 122B

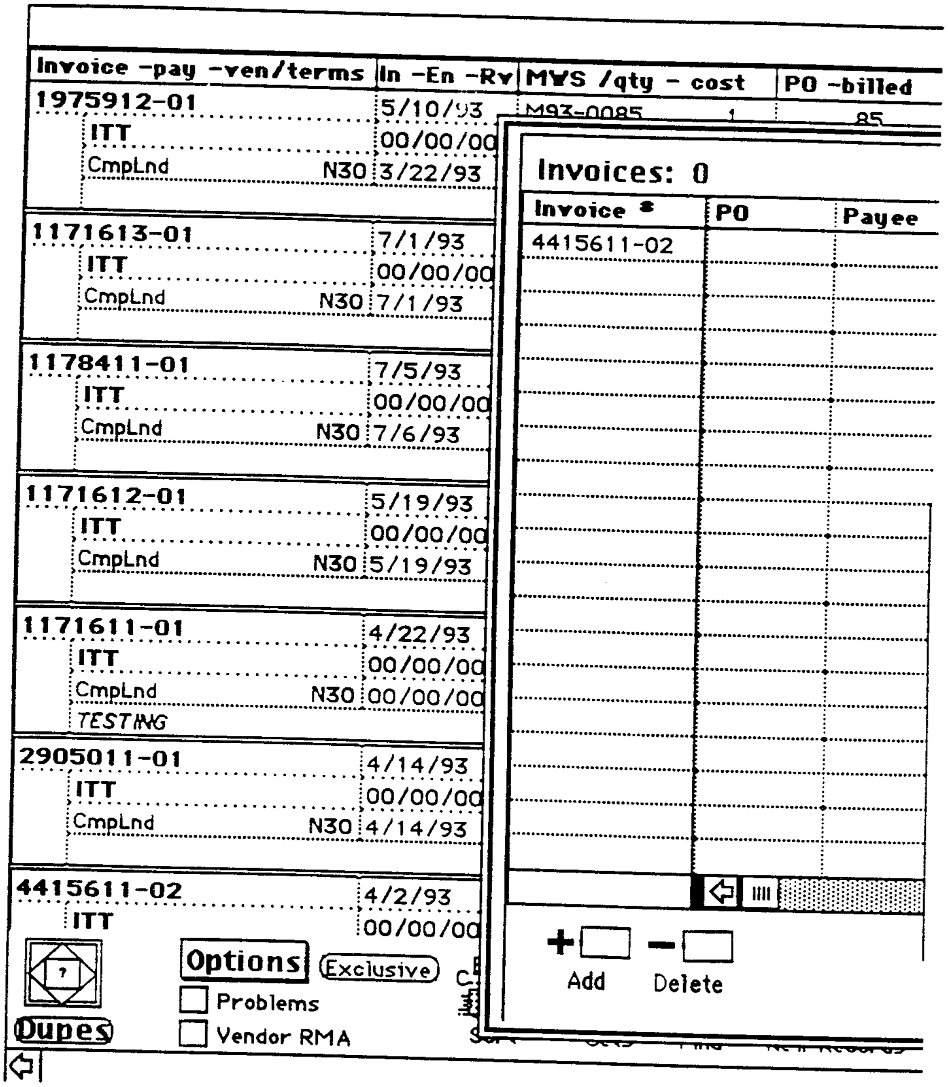


nv Stats
Review Status
Date -
Pay -
[[rx]]
6/16/98 - 5,000.00 -
reight
Te
N3
N3
Cancel
ct Distribution
t Partners Acts

FIG. 122C

Fig. 123



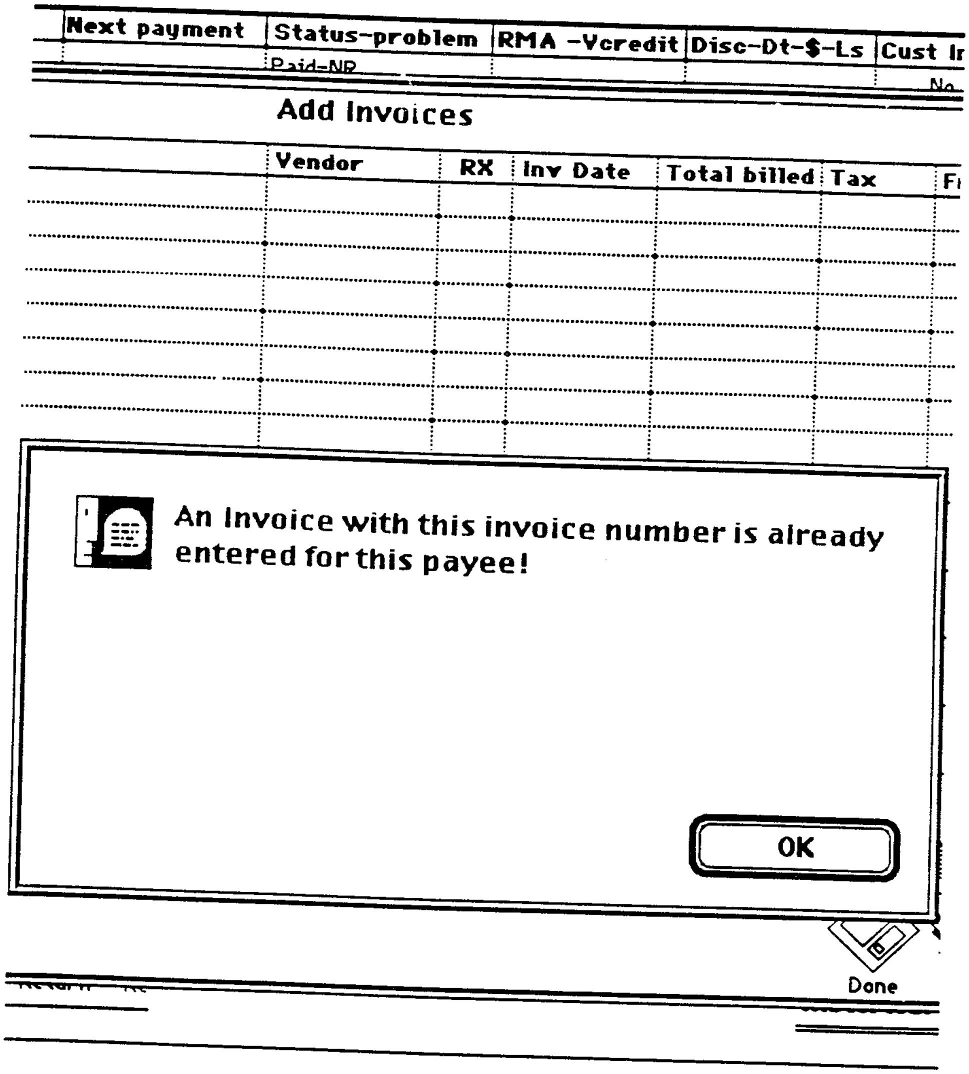


Invoice -pay -ven/terms		In -En -Rv	MVS /qty - cost	PO -billed
1975912-01		5/10/93	M93-0085 1	85
ITT		00/00/00		
CmpLnd	N30	3/22/93		
1171613-01		7/1/93		
ITT		00/00/00		
CmpLnd	N30	7/1/93		
1178411-01		7/5/93		
ITT		00/00/00		
CmpLnd	N30	7/6/93		
1171612-01		5/19/93		
ITT		00/00/00		
CmpLnd	N30	5/19/93		
1171611-01		4/22/93		
ITT		00/00/00		
CmpLnd	N30	00/00/00		
TESTING				
2905011-01		4/14/93		
ITT		00/00/00		
CmpLnd	N30	4/14/93		
4415611-02		4/2/93		
ITT		00/00/00		

Invoices: 0

Invoice #	PO	Payee
4415611-02		

FIG. 123A



An Invoice with this invoice number is already entered for this payee!

FIG. 123B

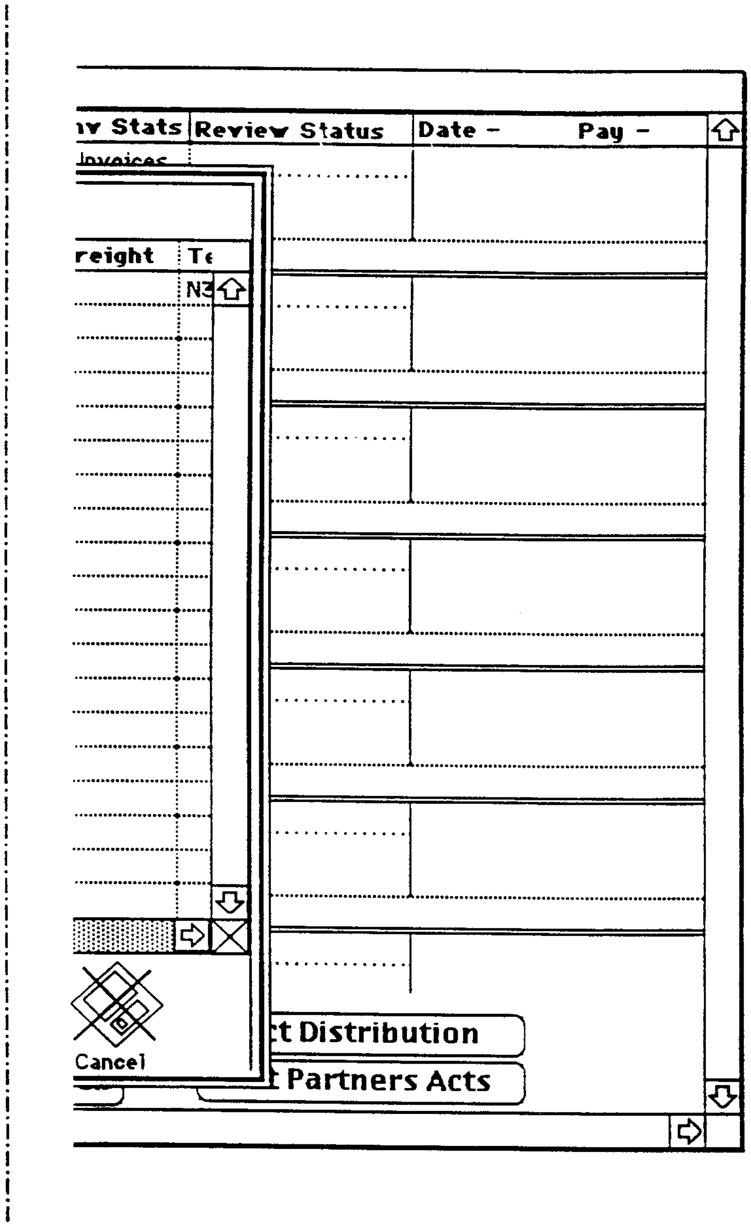
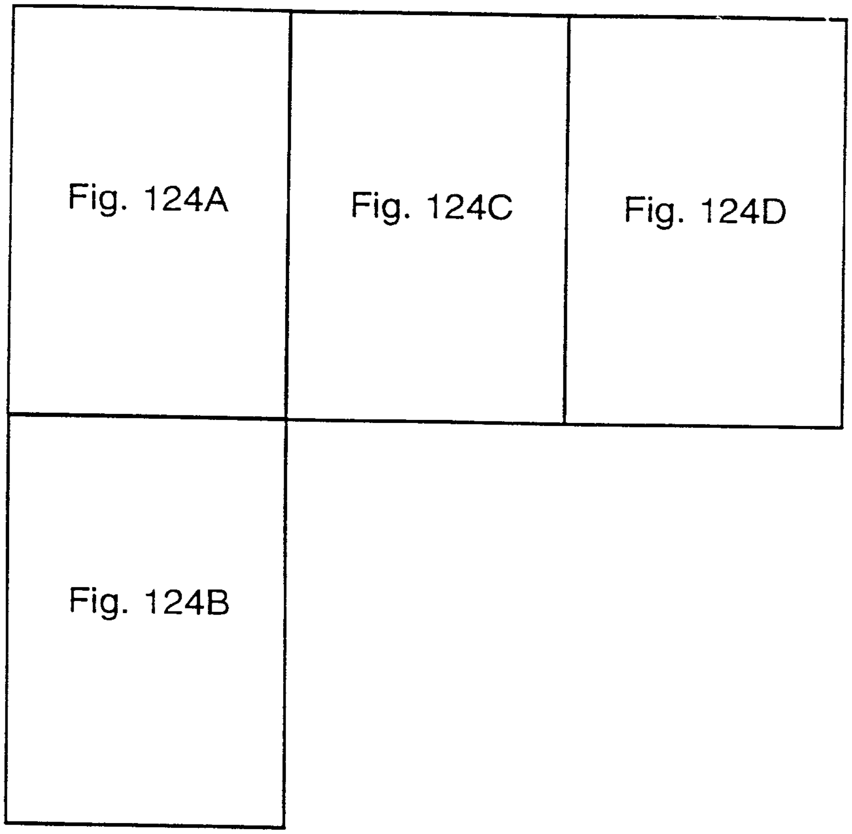

w Stats
Review Status
Date –
Pay –
Invoices
reight
Te
N3
reight
Cancel
t Distribution
t Partners Acts

FIG. 123C

Fig 124



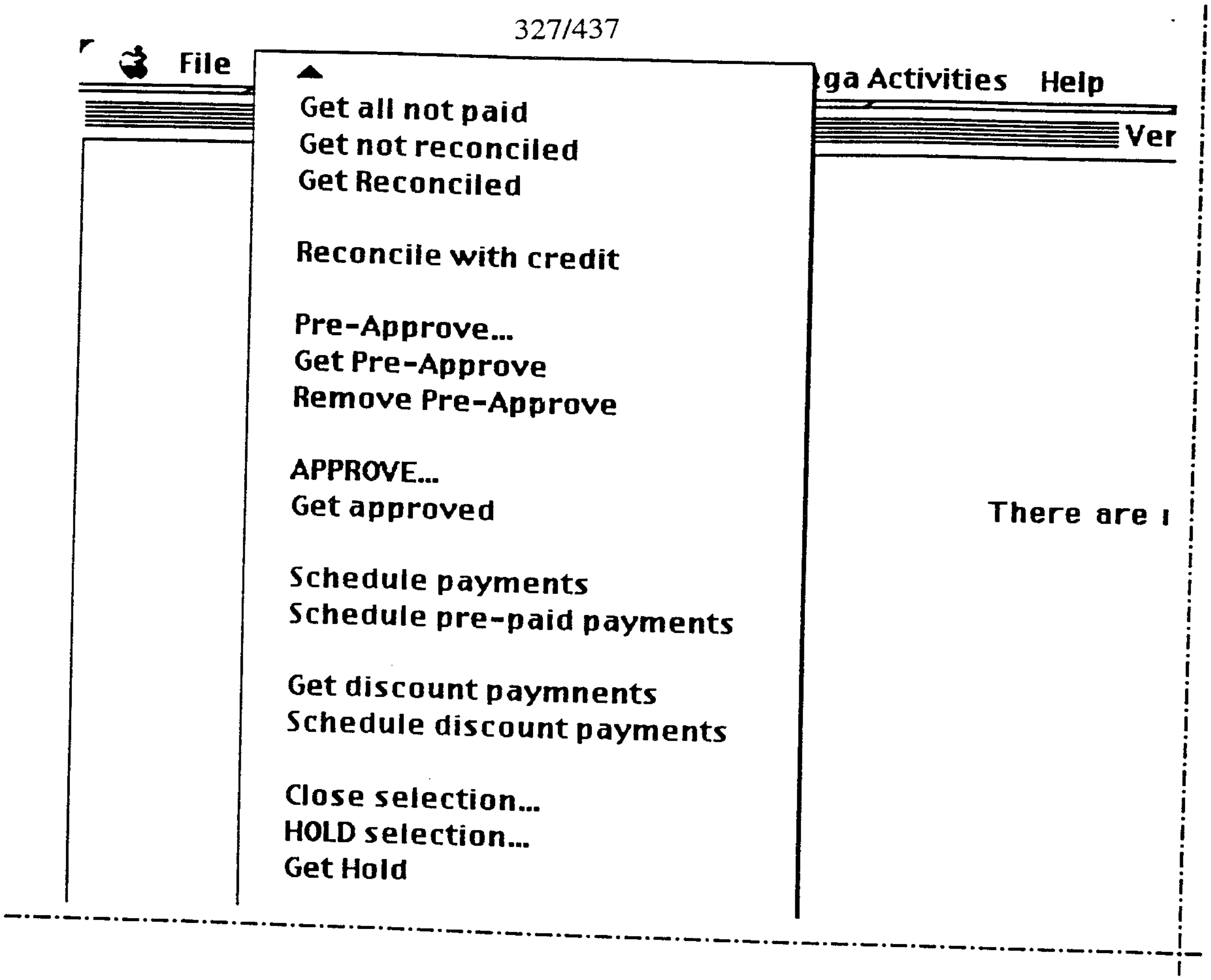

File
ga Activities
Help
Ver
Get all not paid
Get not reconciled
Get Reconciled
Reconcile with credit
Pre-Approve...
Get Pre-Approve
Remove Pre-Approve
APPROVE...
Get approved
Schedule payments
Schedule pre-paid payments
Get discount paymnents
Schedule discount payments
Close selection...
HOLD selection...
Get Hold
There are

FIG. 124A

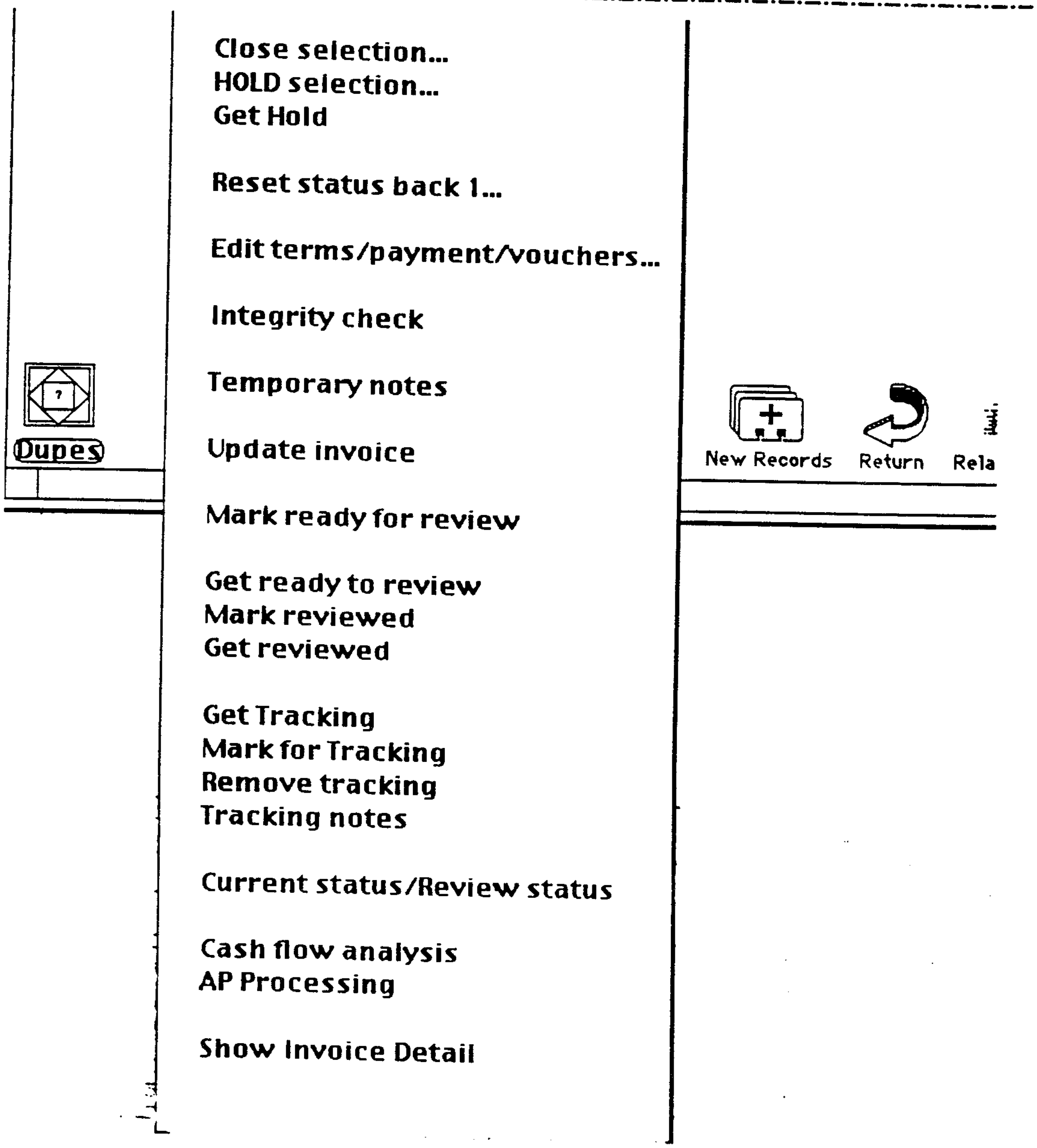
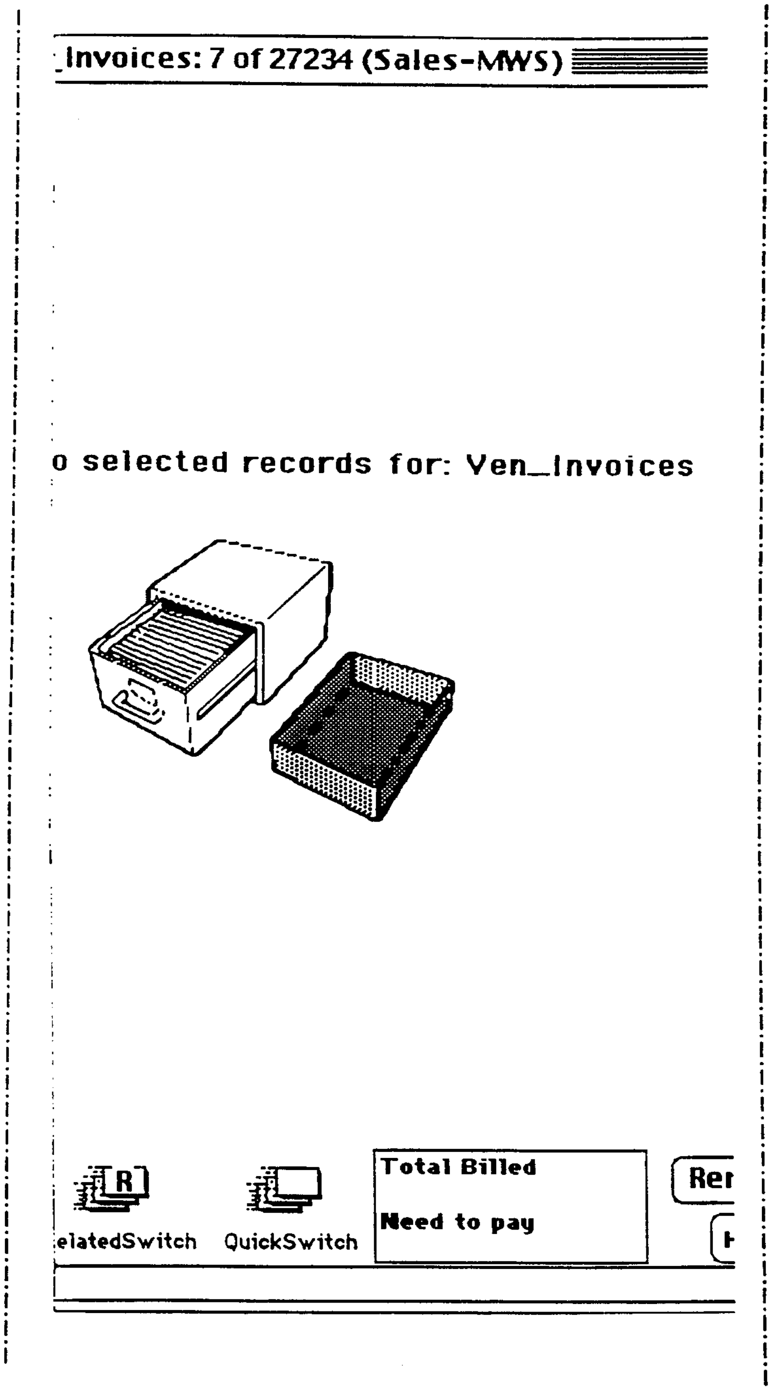

Close selection...
HOLD selection...
Get Hold
Reset status back 1...
Edit terms/payment/vouchers...
Integrity check
Temporary notes
Update invoice
Mark ready for review
Get ready to review
Mark reviewed
Get reviewed
Get Tracking
Mark for Tracking
Remove tracking
Tracking notes
Current status/Review status
Cash flow analysis
AP Processing
Show Invoice Detail
Dupes
?
New Records
Return
Rela

FIG. 124B



Invoices: 7 of 27234 (Sales-MWS)

o selected records for: Ven_Invoices

FIG. 124C

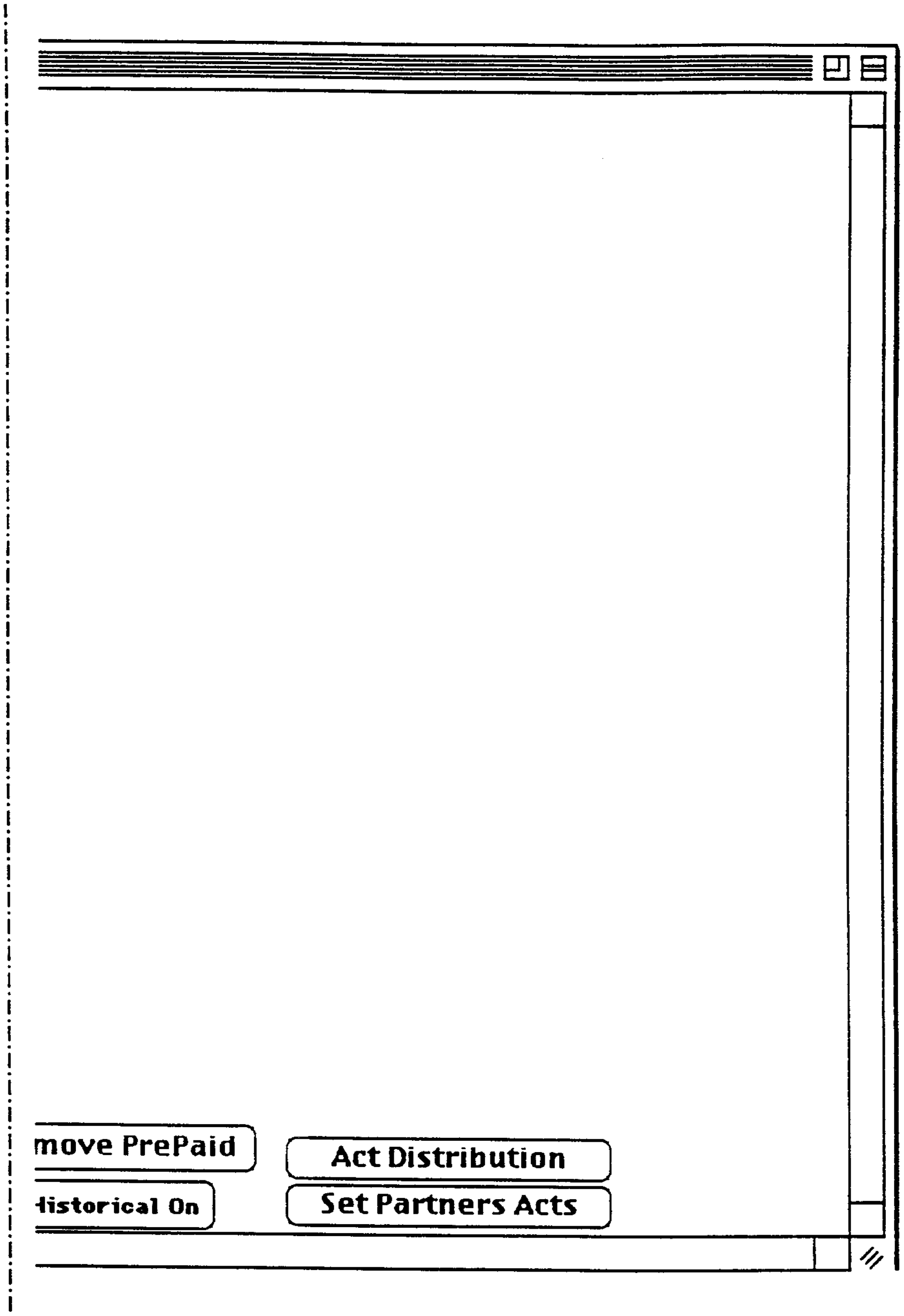
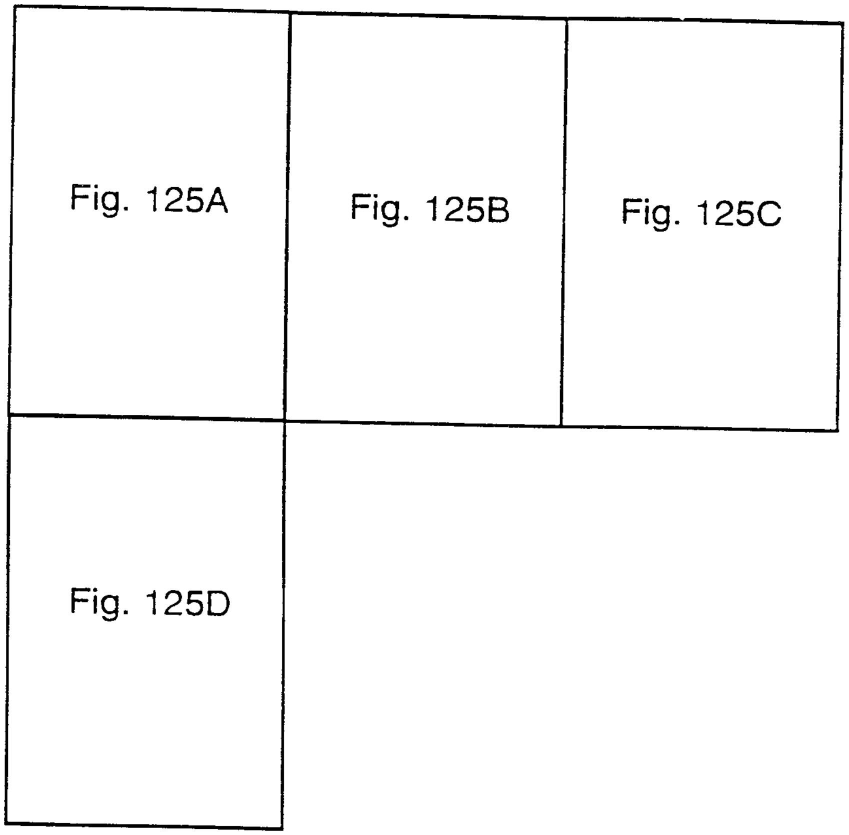

move PrePaid
Act Distribution
listorical On
Set Partners Acts

FIG. 124D

Fig 125



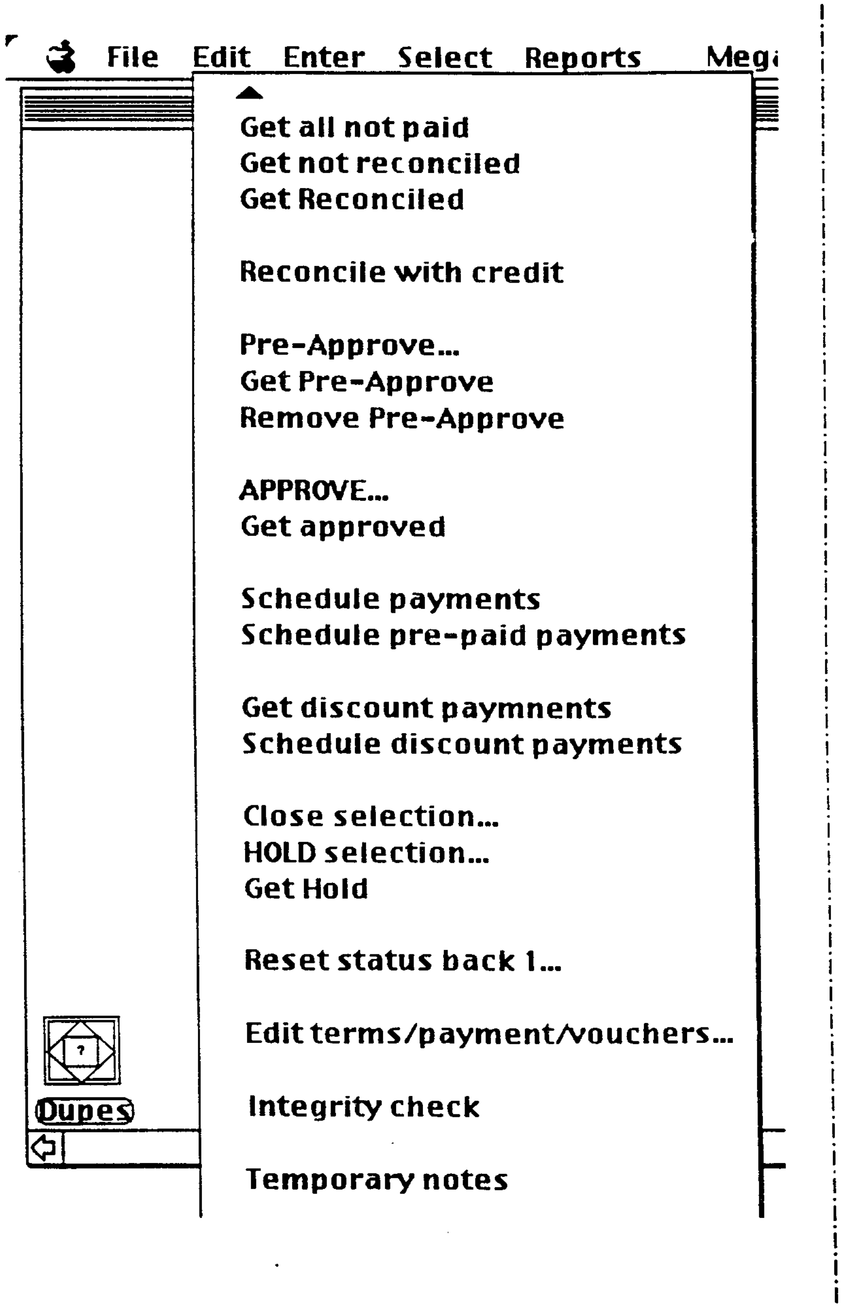
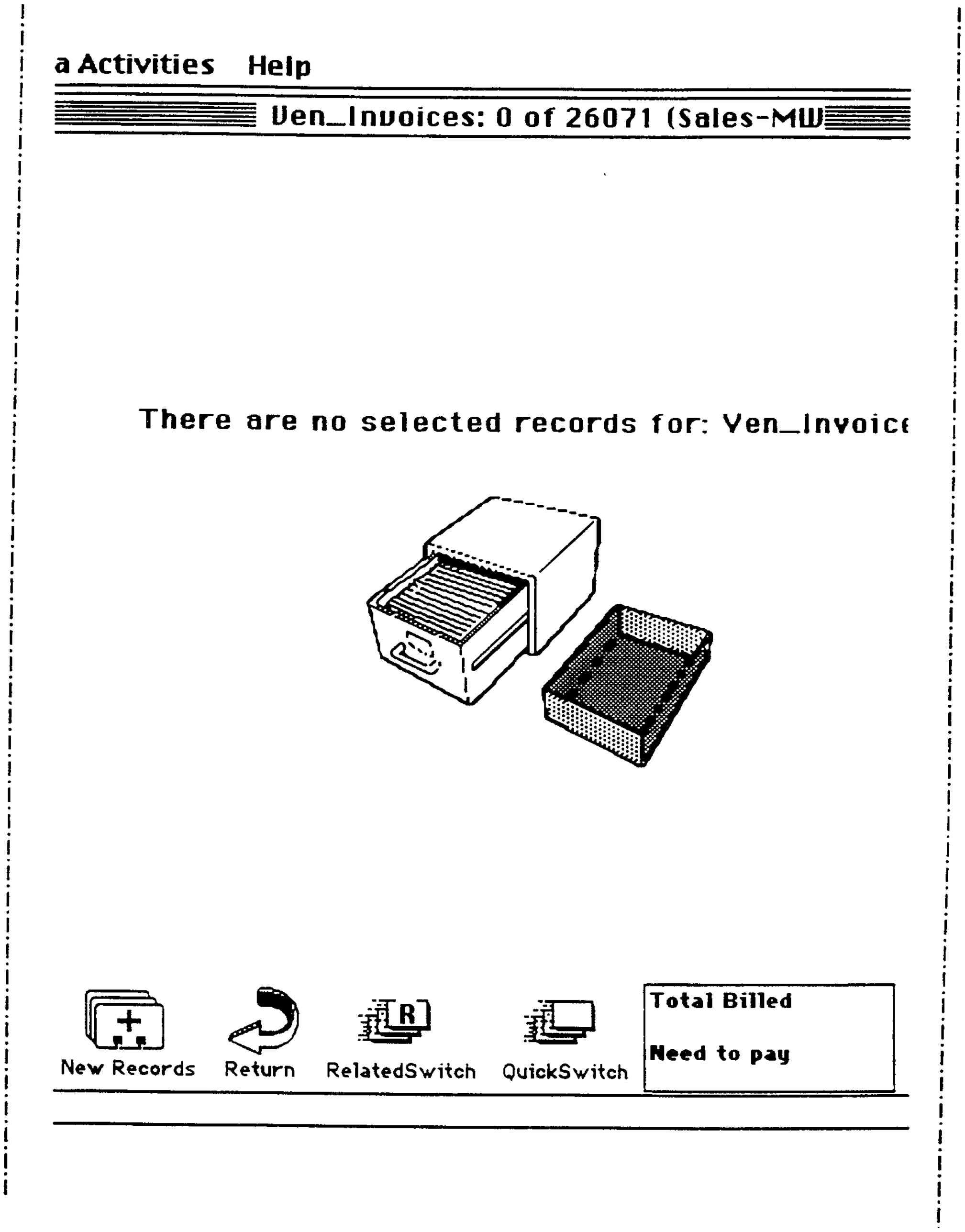

File
Edit
Enter
Select
Reports
Meg
Get all not paid
Get not reconciled
Get Reconciled
Reconcile with credit
Pre-Approve...
Get Pre-Approve
Remove Pre-Approve
APPROVE...
Get approved
Schedule payments
Schedule pre-paid payments
Get discount paymnents
Schedule discount payments
Close selection...
HOLD selection...
Get Hold
Reset status back 1...
Edit terms/payment/vouchers...
Integrity check
Temporary notes
Dupes
?

FIG. 125A



Ven_Invoices: 0 of 26071 (Sales-MW

There are no selected records for: Ven_Invoic

FIG. 125B

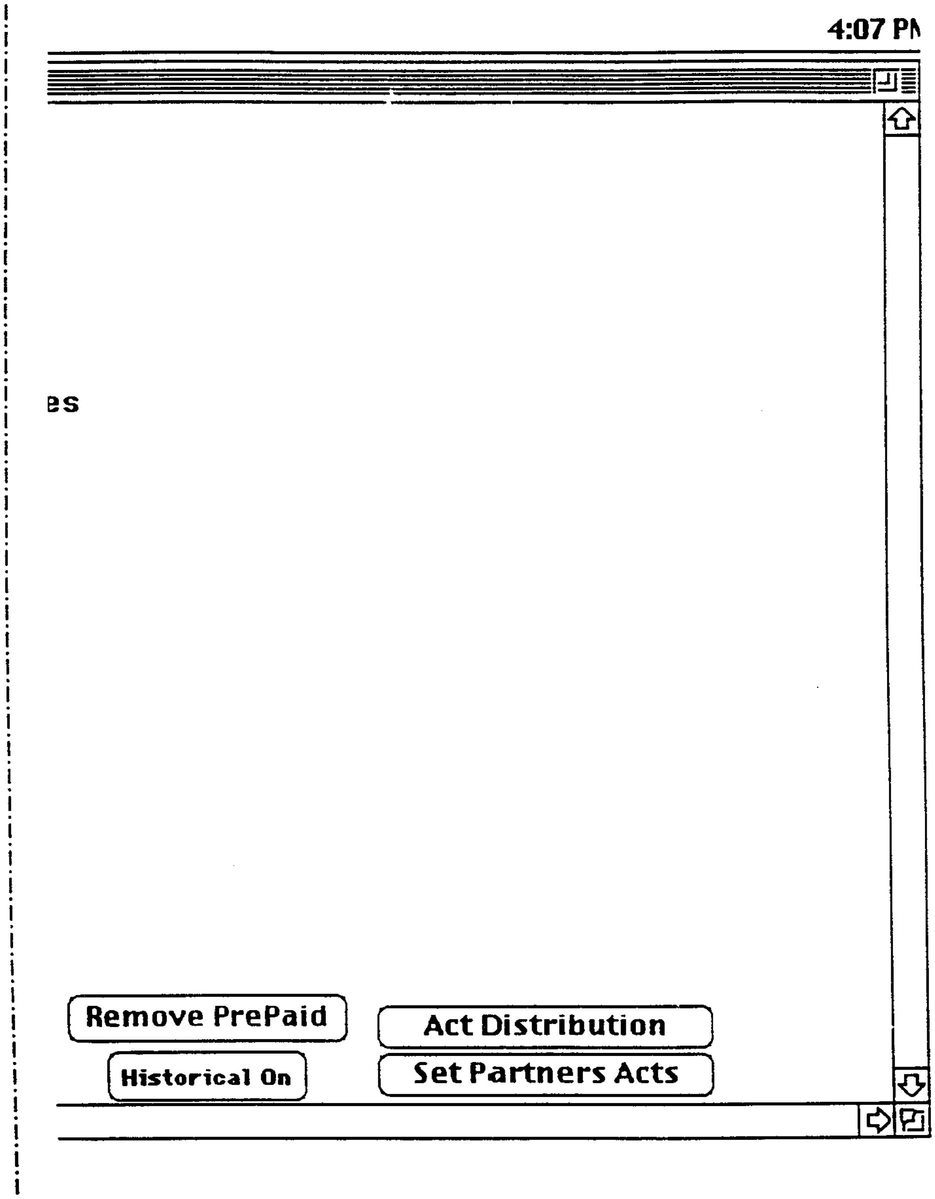

4:07 PM
es
Remove PrePaid
Historical On
Act Distribution
Set Partners Acts

FIG. 125C

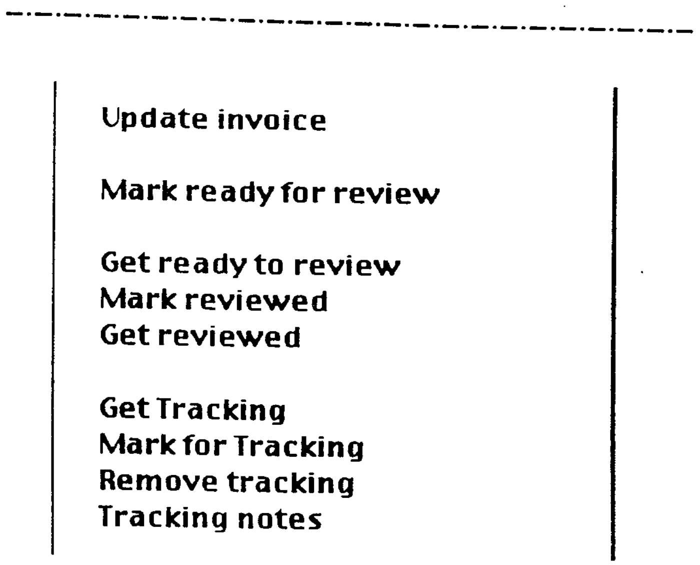
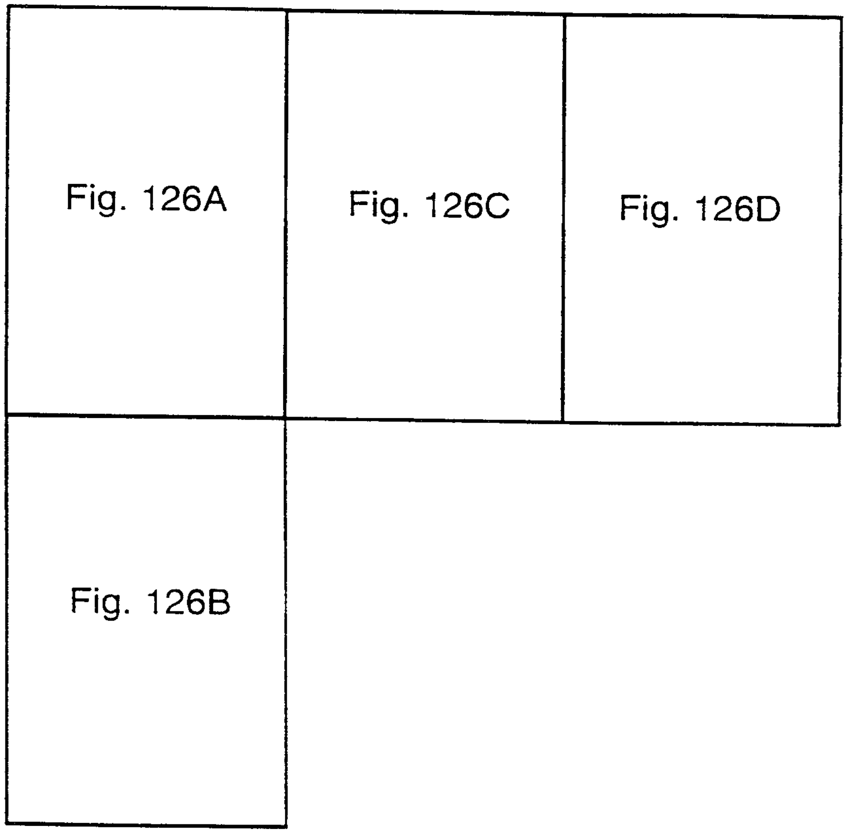

Update invoice
Mark ready for review
Get ready to review
Mark reviewed
Get reviewed
Get Tracking
Mark for Tracking
Remove tracking
Tracking notes

FIG. 125D

Fig 126



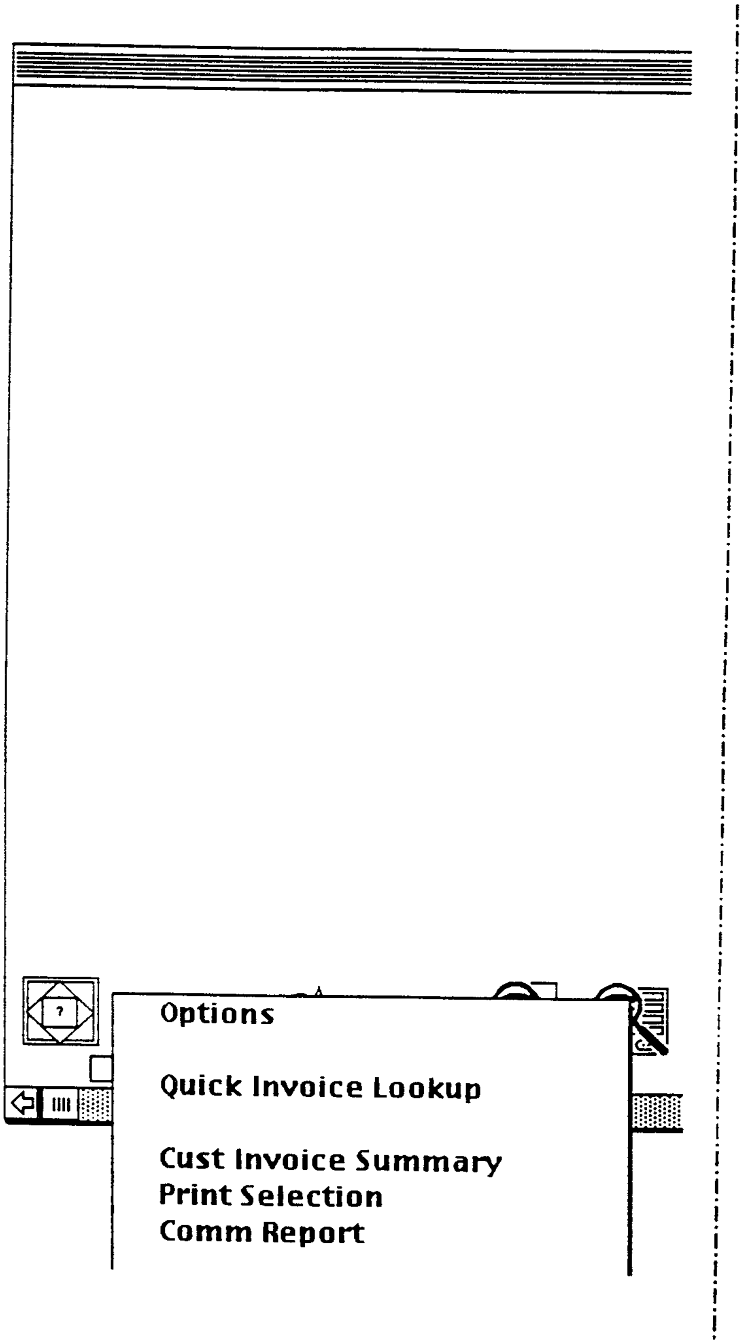

Options
Quick Invoice Lookup
Cust Invoice Summary
Print Selection
Comm Report

FIG. 126A

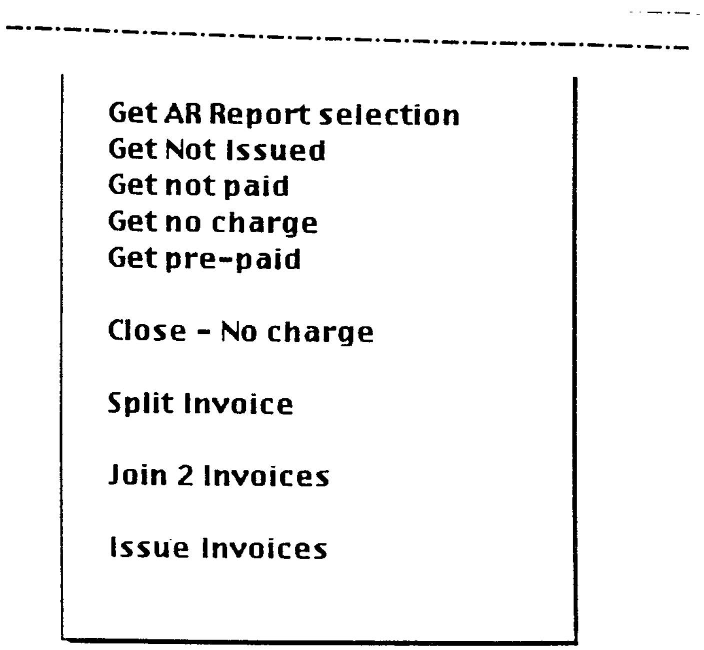
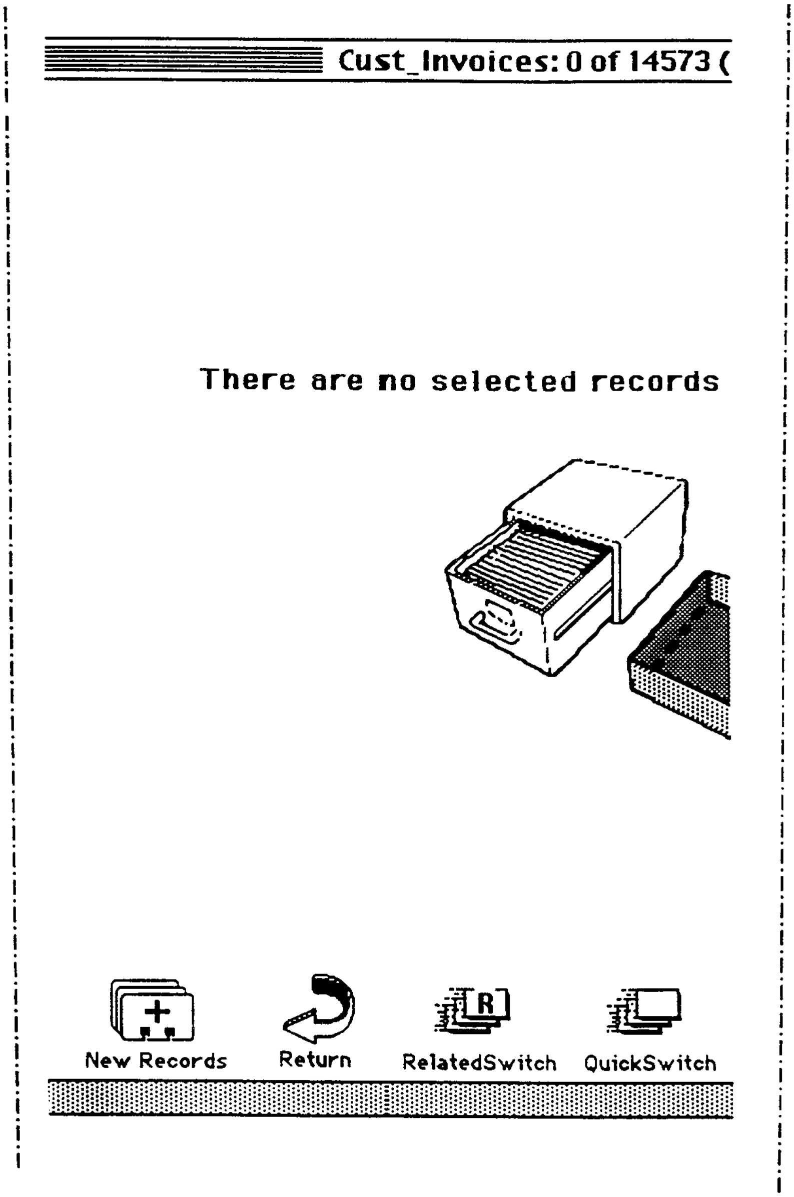

Get AR Report selection
Get Not Issued
Get not paid
Get no charge
Get pre-paid
Close - No charge
Split Invoice
Join 2 Invoices
Issue Invoices

FIG. 126B



Cust_Invoices: 0 of 14573 (

There are no selected records

FIG. 126C

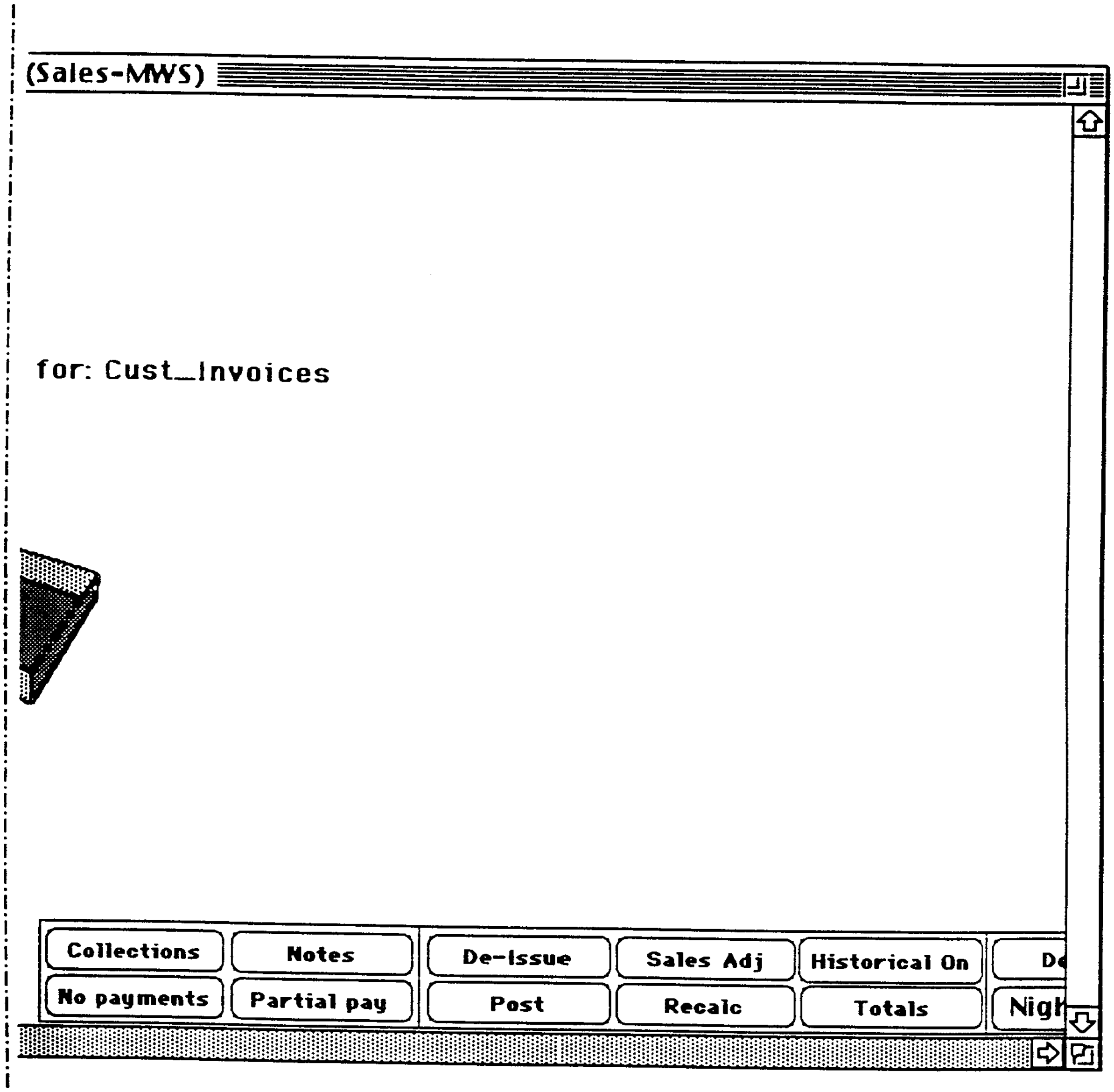
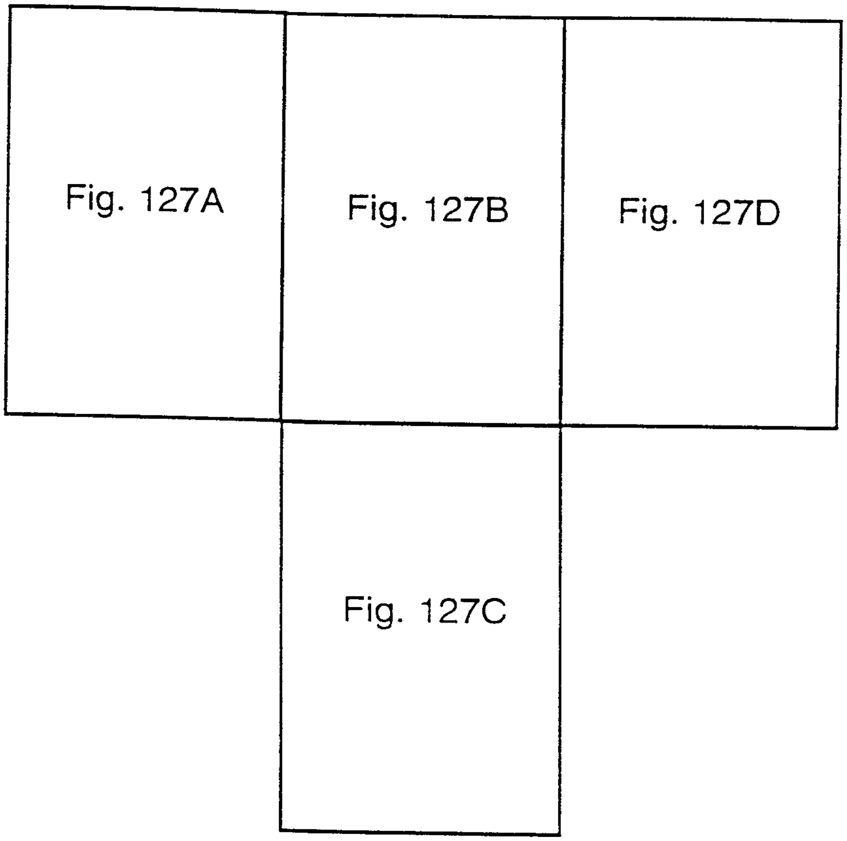

(Sales-MWS)
for: Cust_Invoices
Collections
Notes
De-Issue
Sales Adj
Historical On
De
No payments
Partial pay
Post
Recalc
Totals
Nigh

FIG. 126D

Fig 127



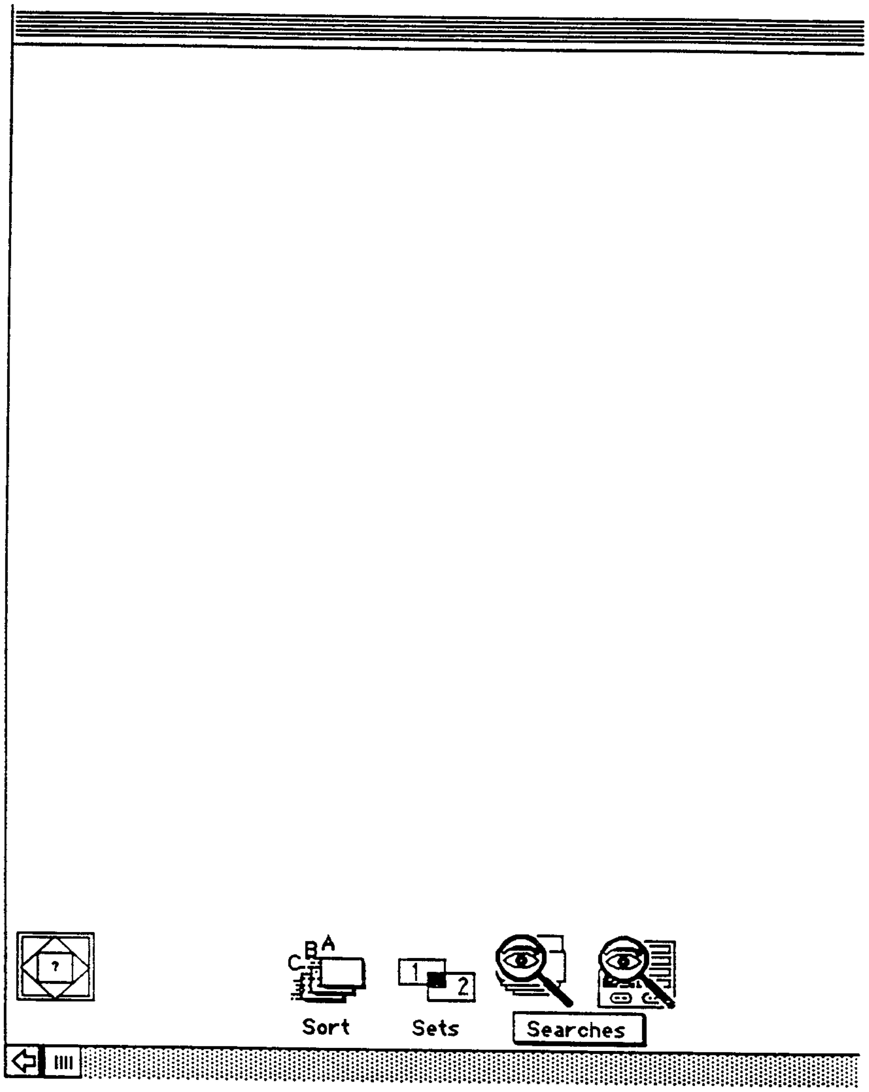
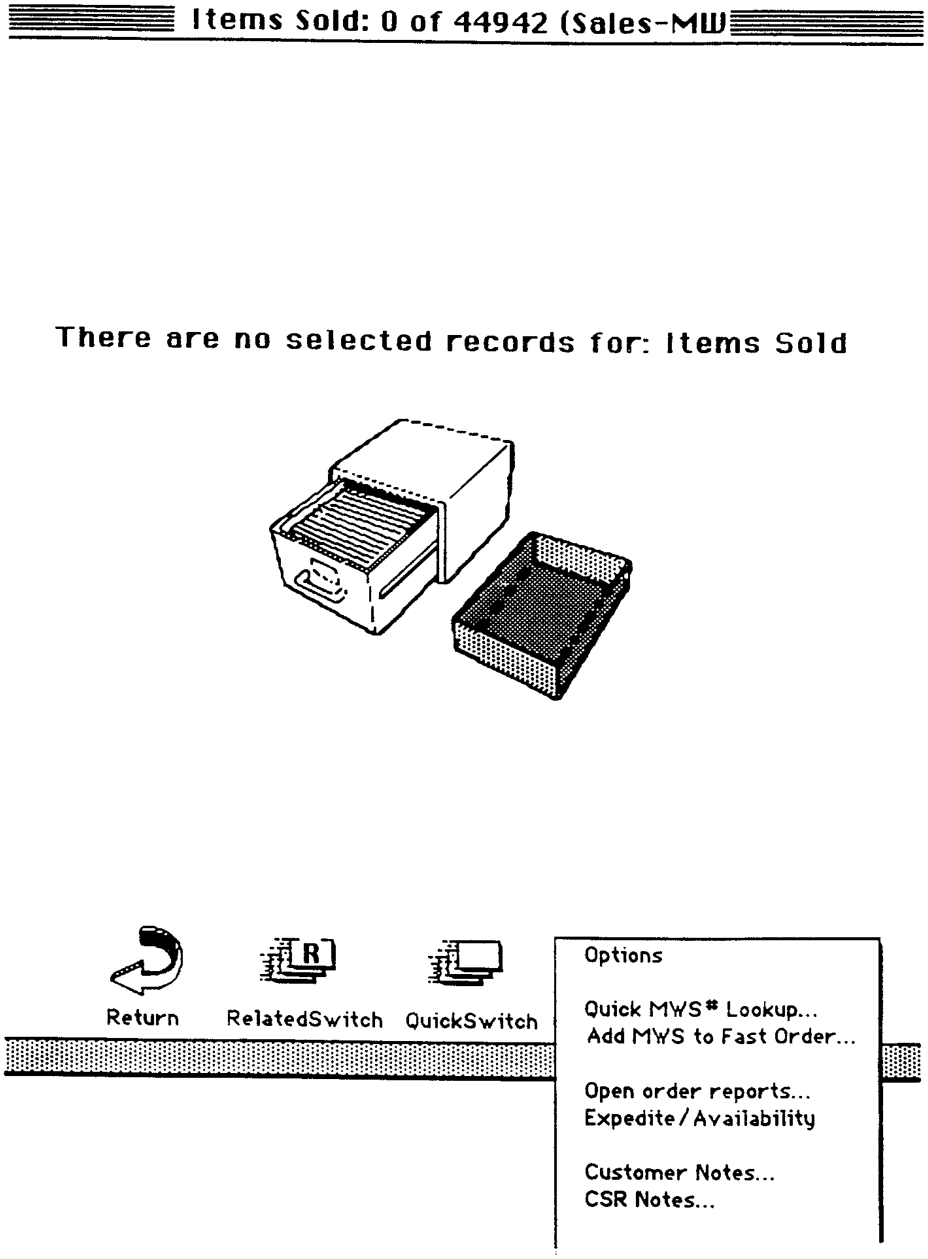


FIG. 127A



Items Sold: 0 of 44942 (Sales-MW

There are no selected records for: Items Sold

FIG. 127B

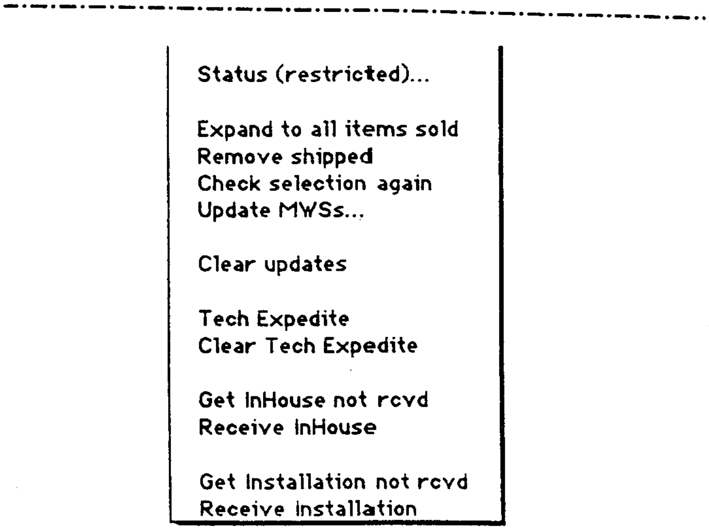

Status (restricted)...
Expand to all items sold
Remove shipped
Check selection again
Update MWSs...
Clear updates
Tech Expedite
Clear Tech Expedite
Get InHouse not rcvd
Receive InHouse
Get Installation not rcvd
Receive Installation

FIG. 127C

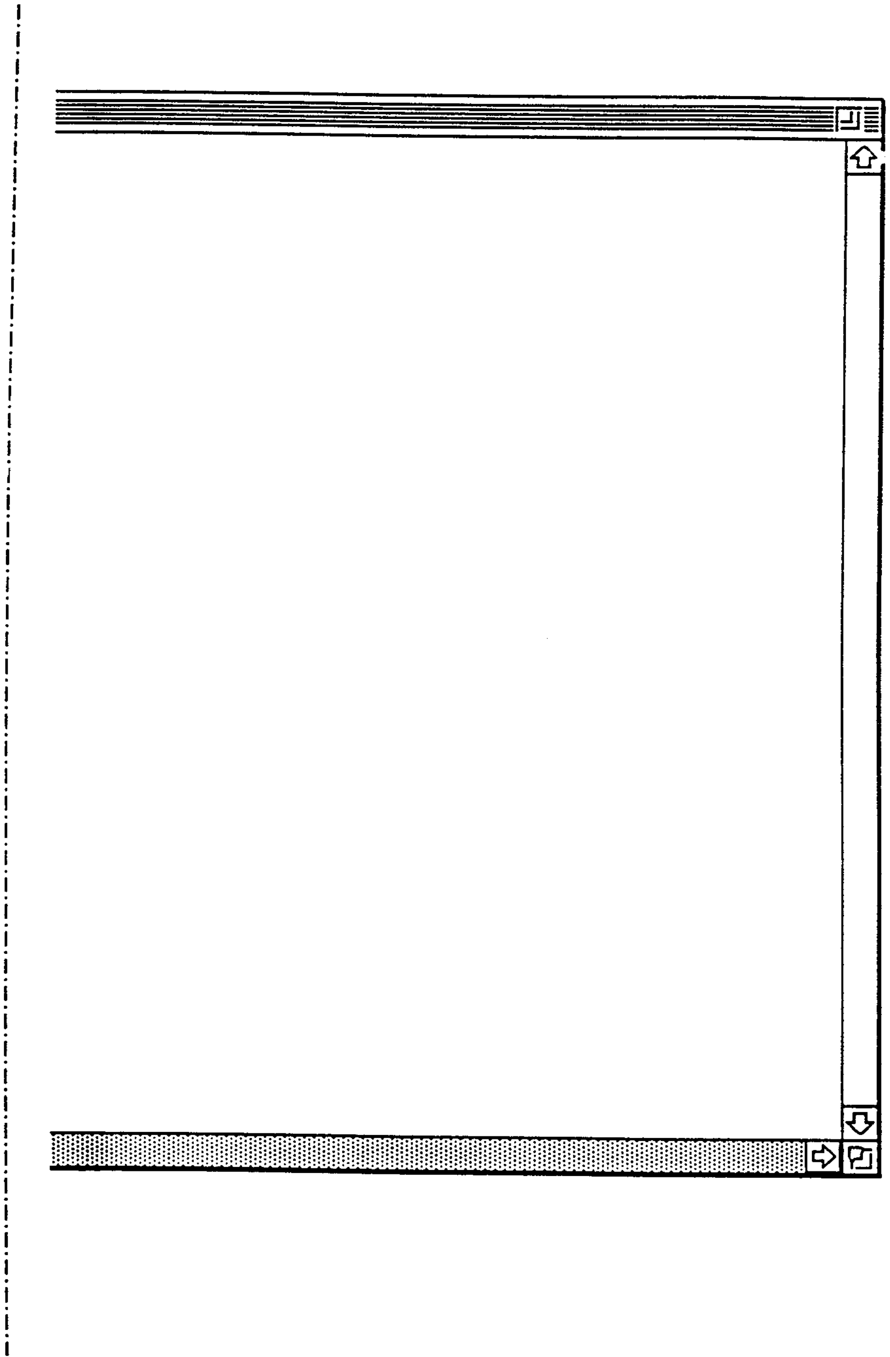
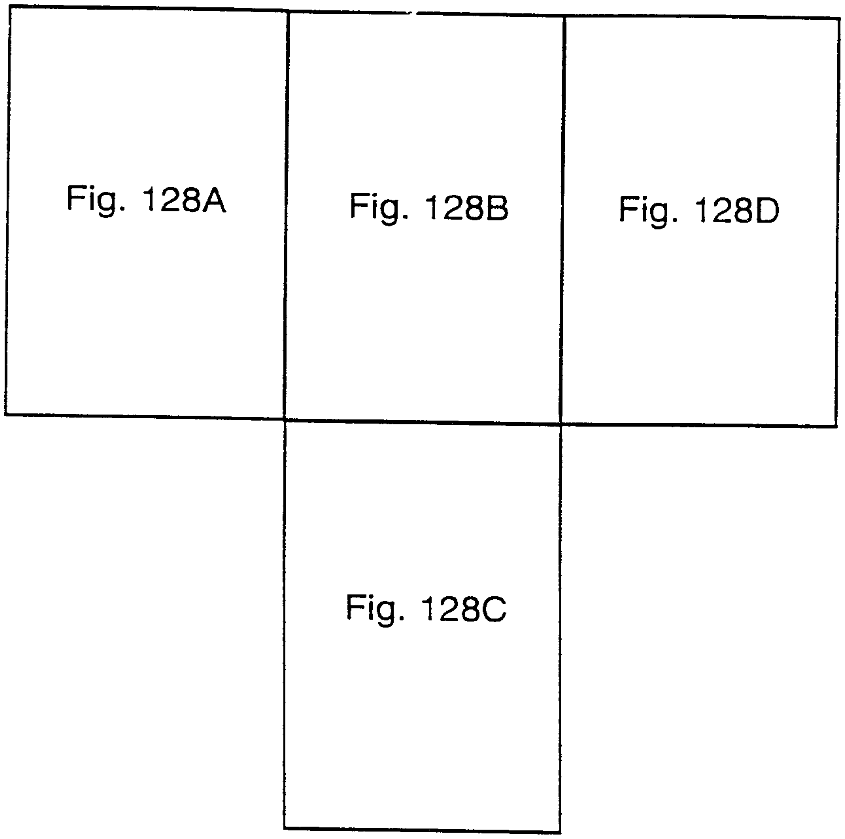
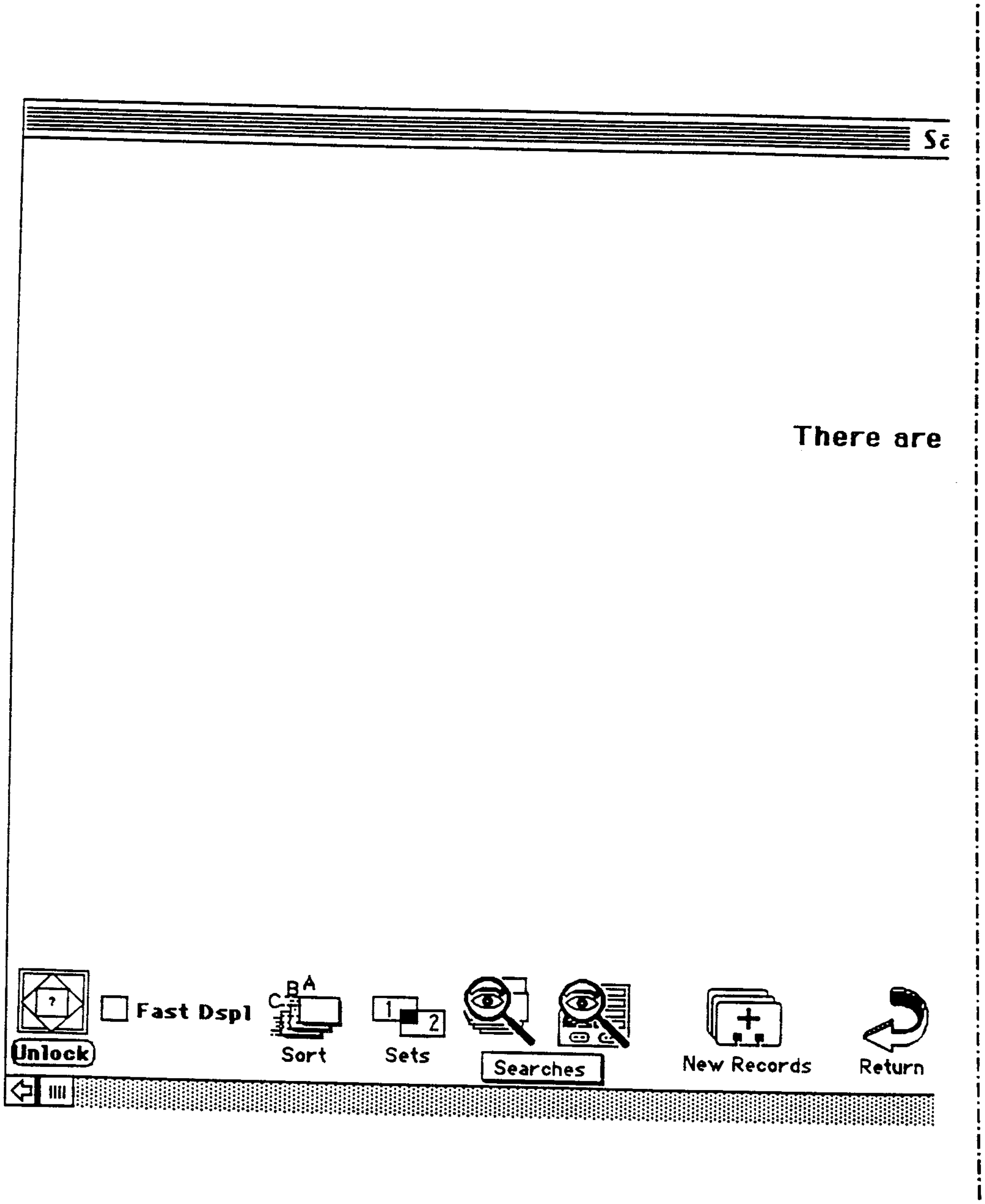


FIG. 127D

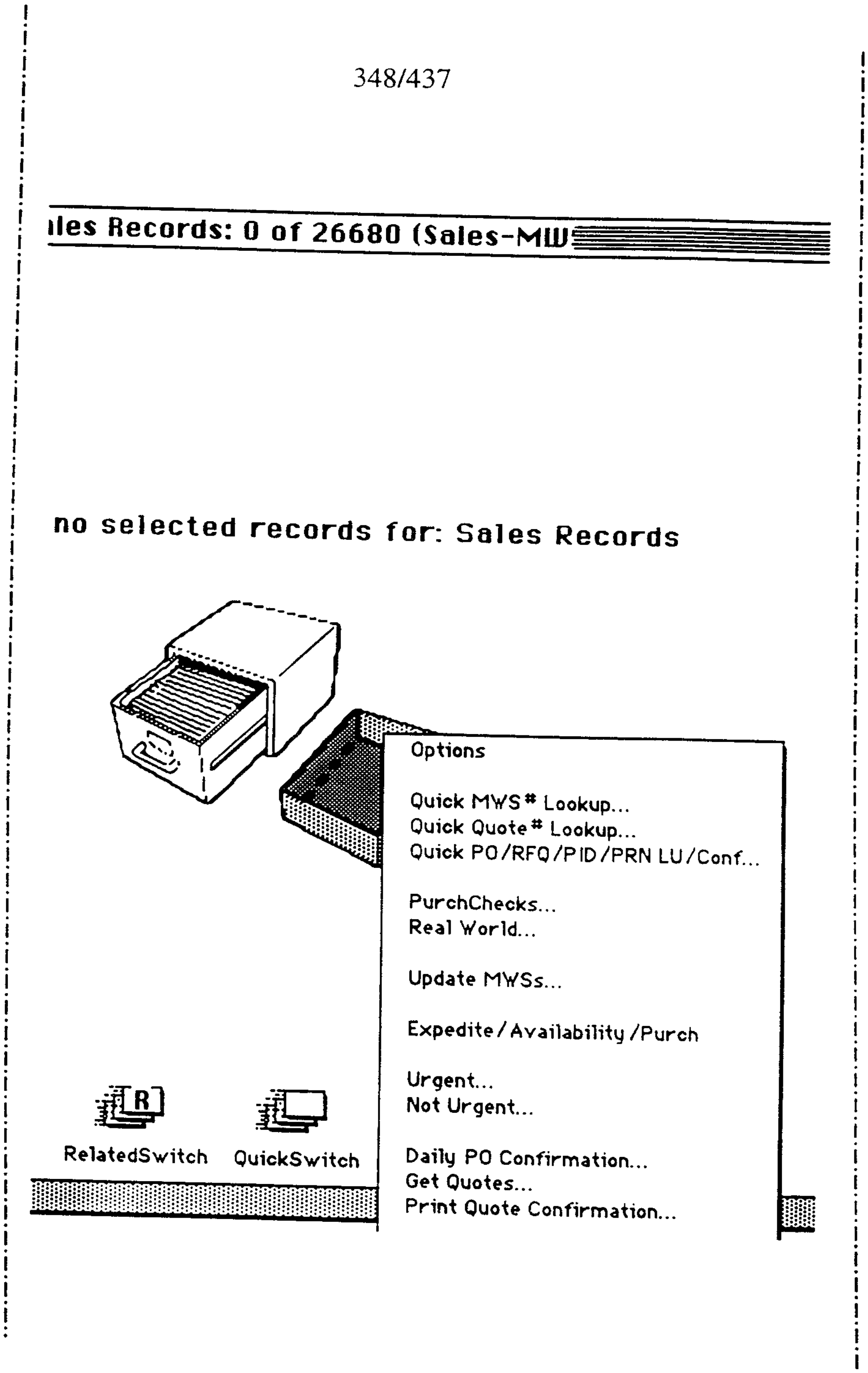
Fig 128





There are

FIG. 128A



iles Records: 0 of 26680 (Sales-MW
no selected records for: Sales Records
Options
Quick MWS# Lookup...
Quick Quote# Lookup...
Quick PO/RFQ/PID/PRN LU/Conf...
PurchChecks...
Real World...
Update MWSs...
Expedite/Availability/Purch
Urgent...
Not Urgent...
Daily PO Confirmation...
Get Quotes...
Print Quote Confirmation...
R
RelatedSwitch
QuickSwitch

FIG. 128B

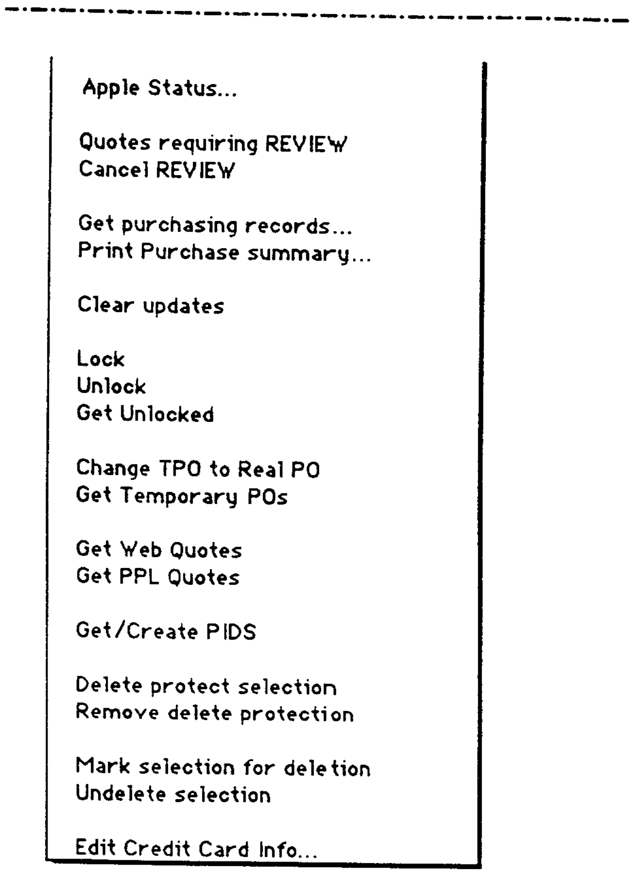

Apple Status...
Quotes requiring REVIEW
Cancel REVIEW
Get purchasing records...
Print Purchase summary...
Clear updates
Lock
Unlock
Get Unlocked
Change TPO to Real PO
Get Temporary POs
Get Web Quotes
Get PPL Quotes
Get/Create PIDS
Delete protect selection
Remove delete protection
Mark selection for deletion
Undelete selection
Edit Credit Card Info...

FIG. 128C

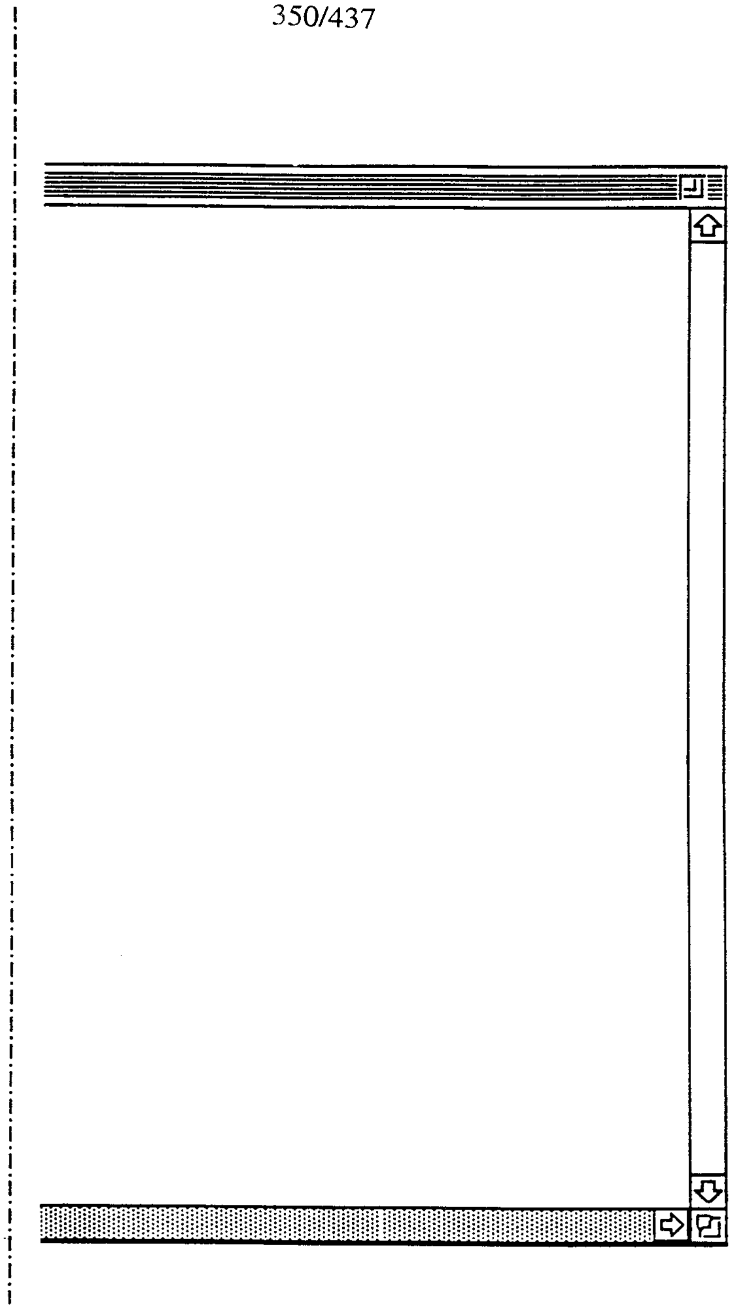


FIG. 128D

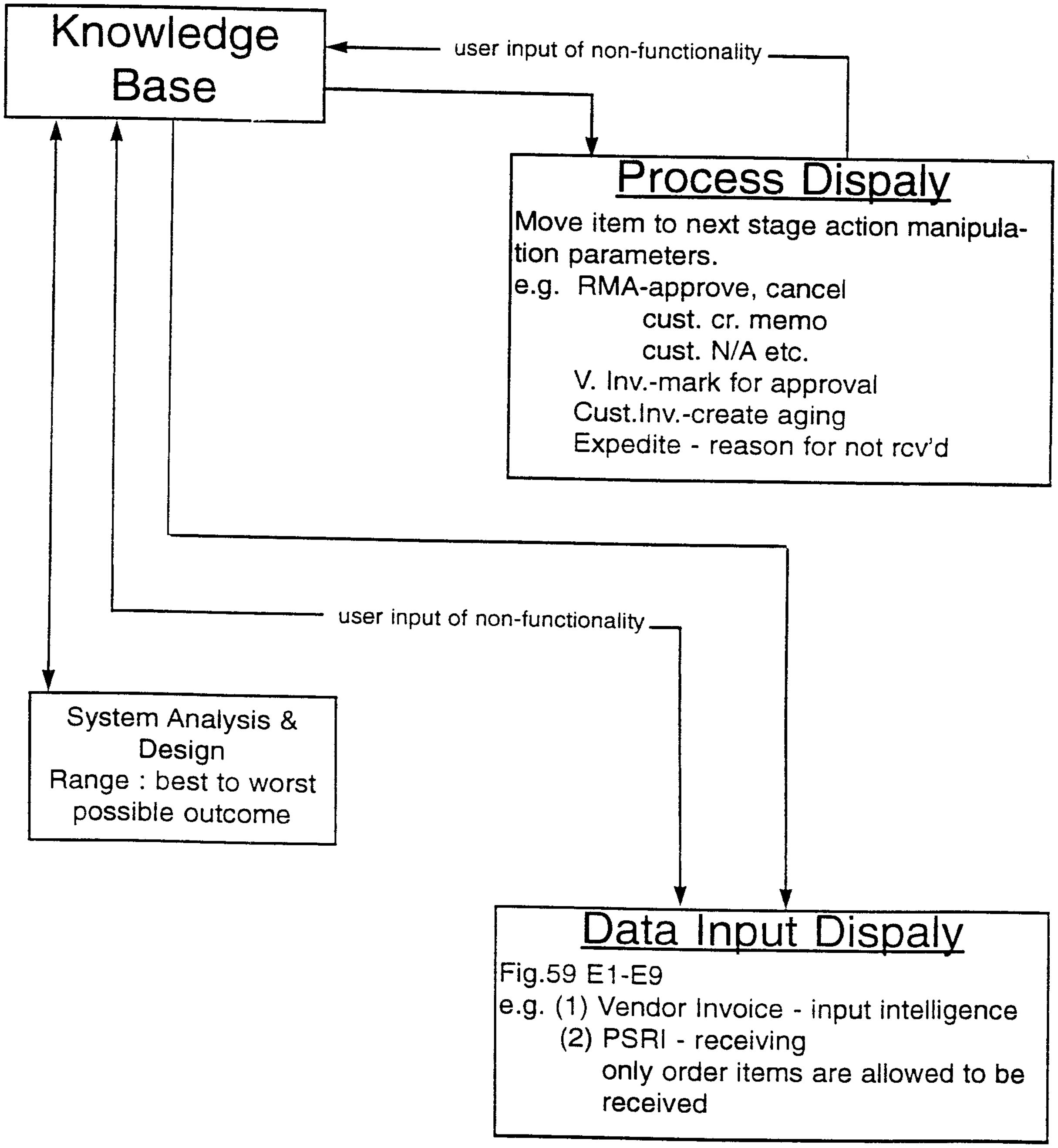
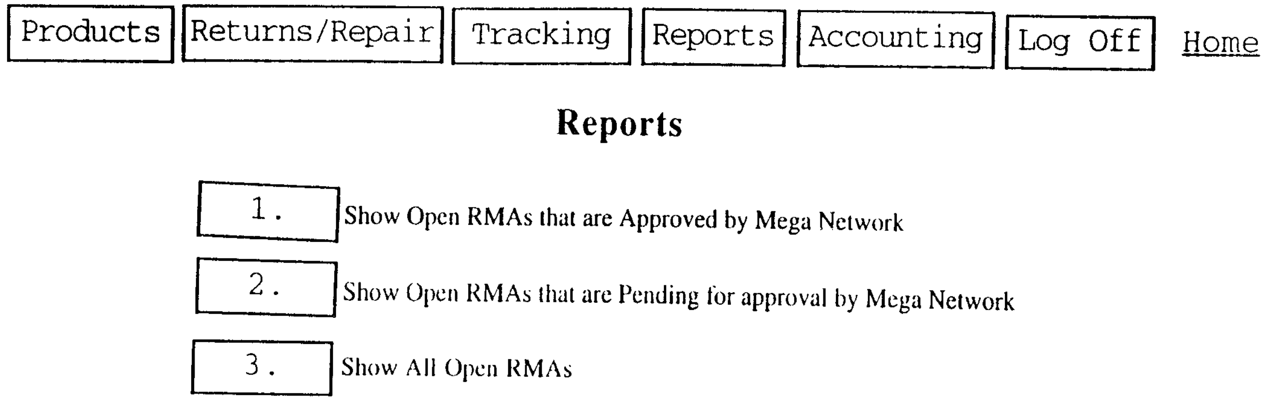

Knowledge Base
user input of non-functionality
Process Dispaly
Move item to next stage action manipulation parameters.
e.g. RMA-approve, cancel
cust. cr. memo
cust. N/A etc.
V. Inv.-mark for approval
Cust.Inv.-create aging
Expedite - reason for not rcv'd
user input of non-functionality
System Analysis & Design
Range : best to worst possible outcome
Data Input Dispaly
Fig.59 E1-E9
e.g. (1) Vendor Invoice - input intelligence
(2) PSRI - receiving
only order items are allowed to be received

Fig. 129



Reports

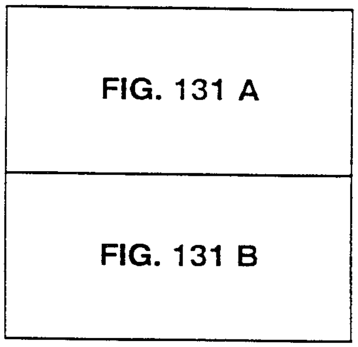
1. Show Open RMAs that are Approved by Mega Network

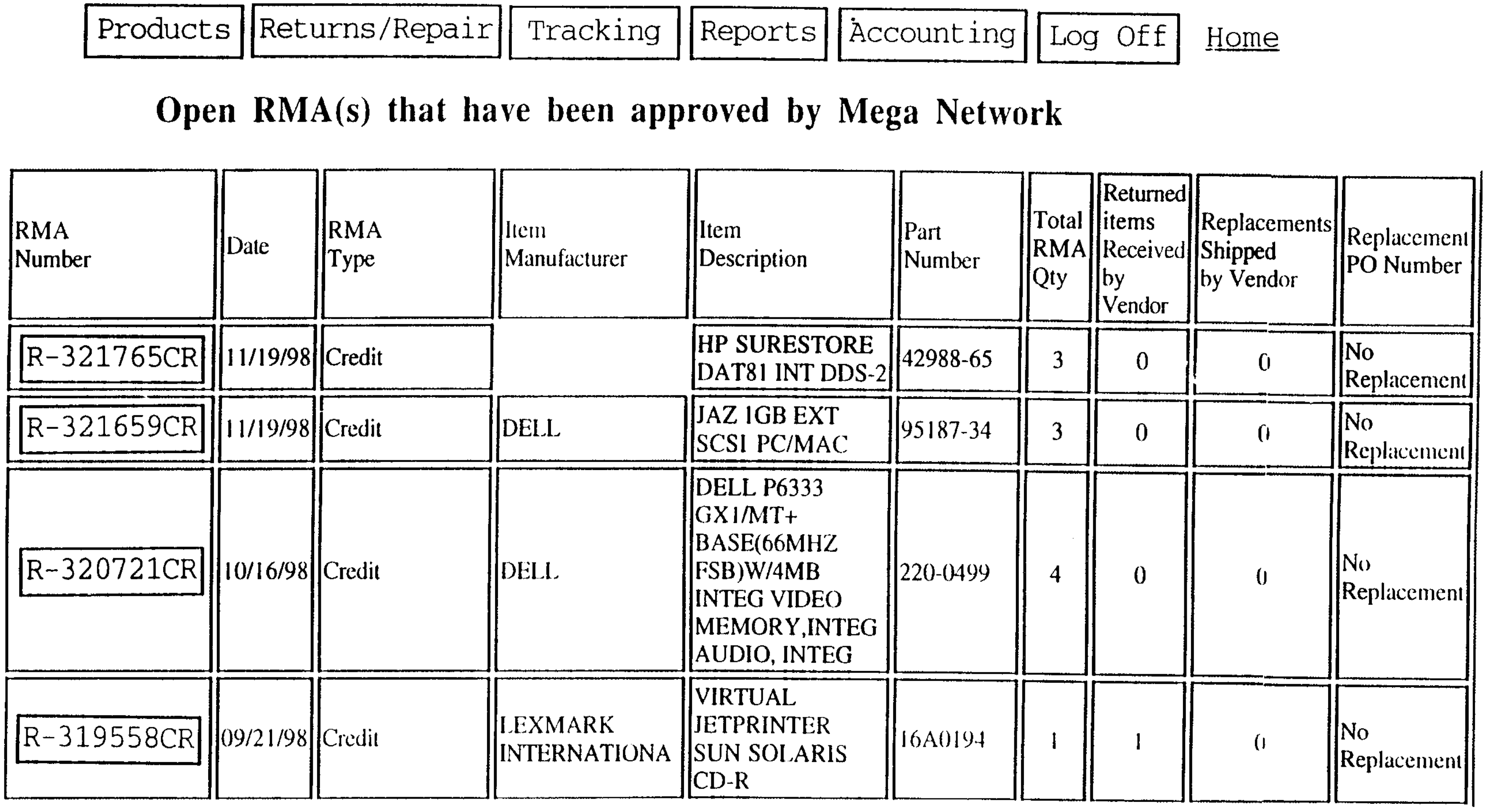
2. Show Open RMAs that are Pending for approval by Mega Network

3. Show All Open RMAs

FIG. 130

FIG. 131

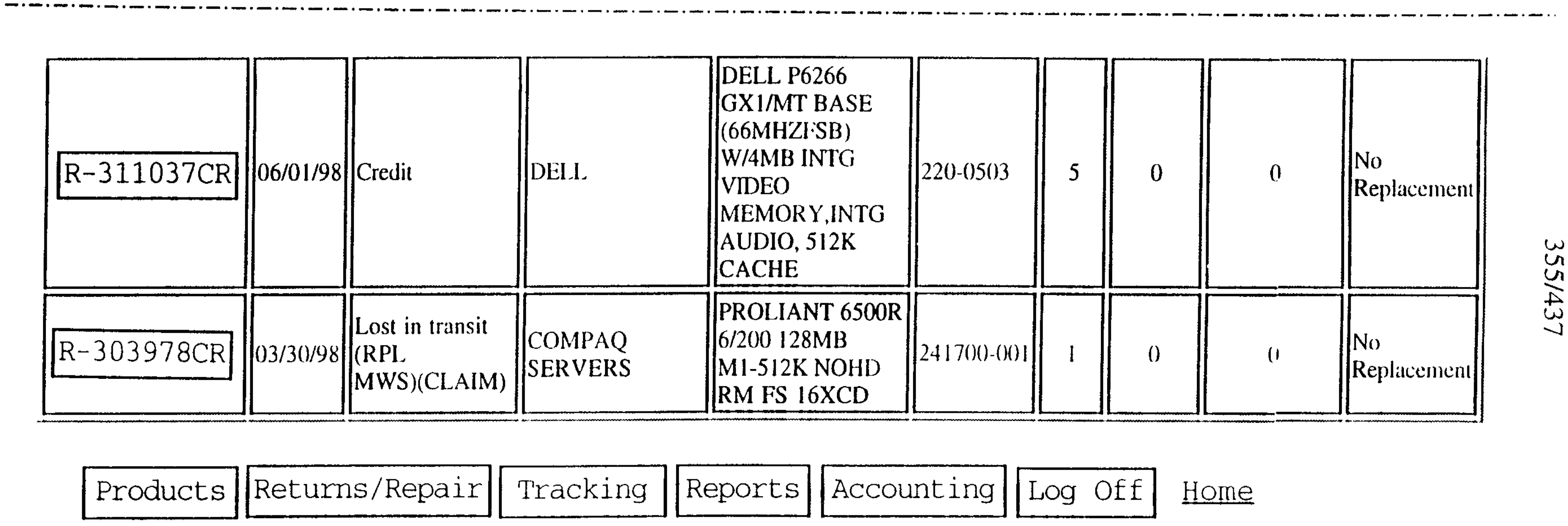




Open RMA(s) that have been approved by Mega Network

RMA Number	Date	RMA Type	Item Manufacturer	Item Description	Part Number	Total RMA Qty	Returned items Received by Vendor	Replacements Shipped by Vendor	Replacement PO Number
R-321765CR	11/19/98	Credit		HP SURESTORE DAT81 INT DDS-2	42988-65	3	0	0	No Replacement
R-321659CR	11/19/98	Credit	DELL	JAZ 1GB EXT SCSI PC/MAC	95187-34	3	0	0	No Replacement
R-320721CR	10/16/98	Credit	DELL	DELL P6333 GX1/MT+ BASE(66MHZ FSB)W/4MB INTEG VIDEO MEMORY,INTEG AUDIO, INTEG	220-0499	4	0	0	No Replacement
R-319558CR	09/21/98	Credit	LEXMARK INTERNATIONA	VIRTUAL JETPRINTER SUN SOLARIS CD-R	16A0194	1	1	0	No Replacement

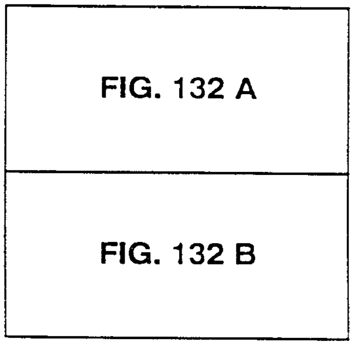
FIG. 131 A

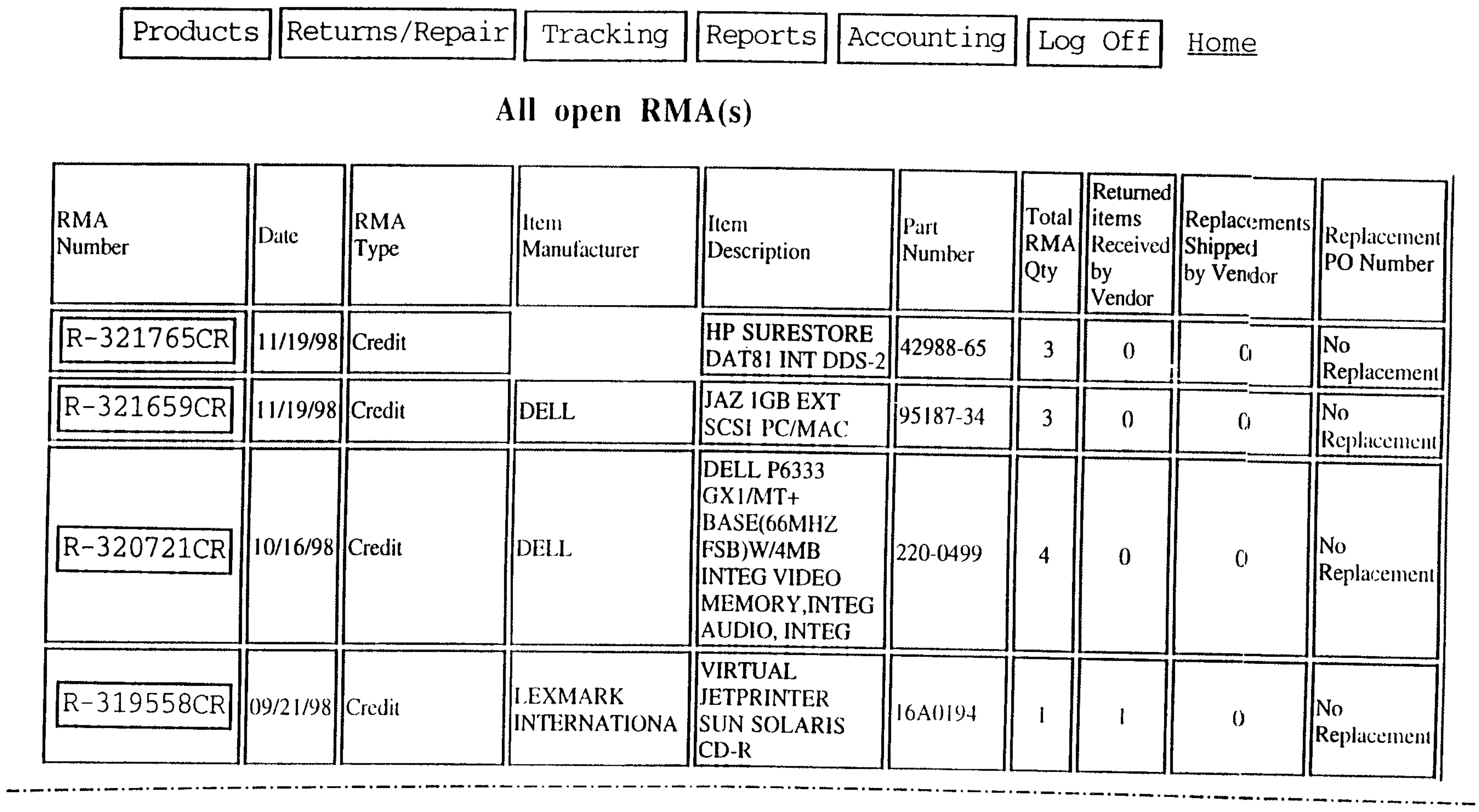


R-311037CR	06/01/98	Credit	DELL	DELL P6266 GX1/MT BASE (66MHZFSB) W/4MB INTG VIDEO MEMORY,INTG AUDIO, 512K CACHE	220-0503	5	0	0	No Replacement
R-303978CR	03/30/98	Lost in transit (RPL MWS)(CLAIM)	COMPAQ SERVERS	PROLIANT 6500R 6/200 128MB M1-512K NOHD RM FS 16XCD	241700-001	1	0	0	No Replacement

FIG. 131 B

FIG. 132

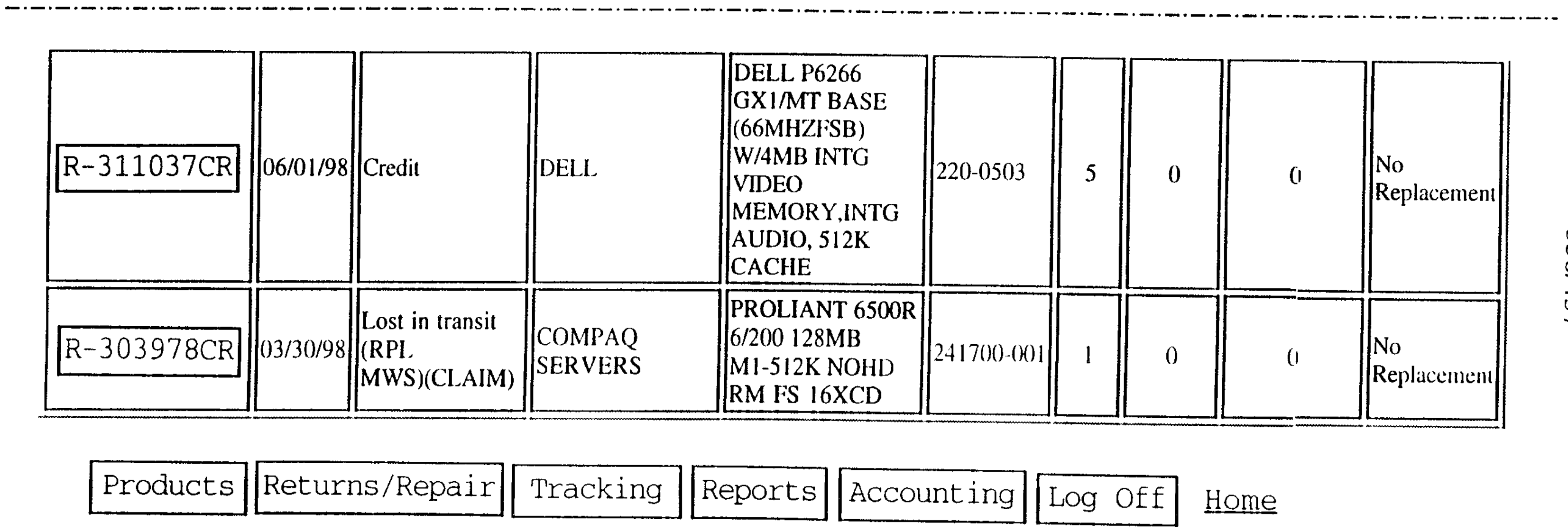




All open RMA(s)

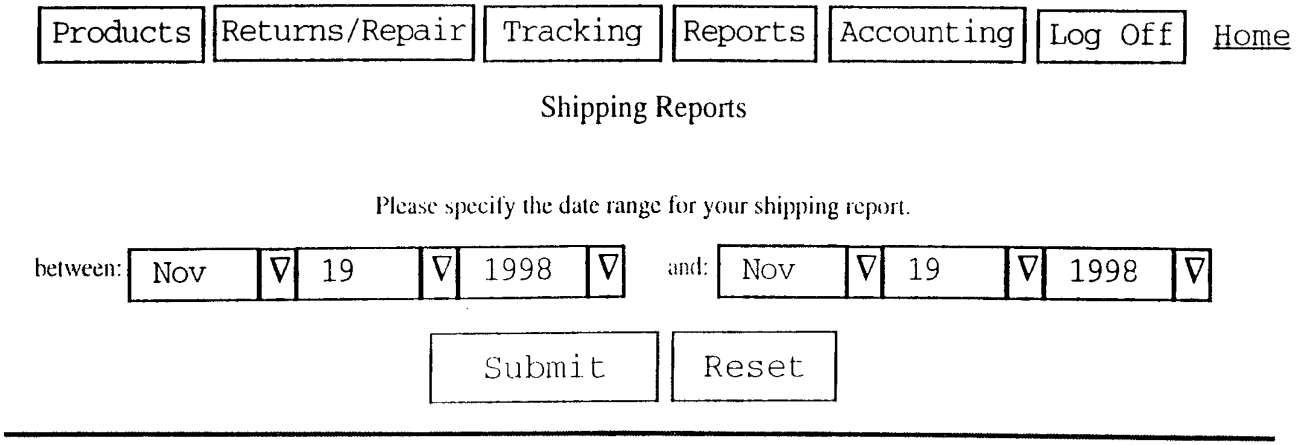
RMA Number	Date	RMA Type	Item Manufacturer	Item Description	Part Number	Total RMA Qty	Returned items Received by Vendor	Replacements Shipped by Vendor	Replacement PO Number
R-321765CR	11/19/98	Credit		HP SURESTORE DAT81 INT DDS-2	42988-65	3	0	0	No Replacement
R-321659CR	11/19/98	Credit	DELL	JAZ 1GB EXT SCSI PC/MAC	95187-34	3	0	0	No Replacement
R-320721CR	10/16/98	Credit	DELL	DELL P6333 GX1/MT+ BASE(66MHZ FSB)W/4MB INTEG VIDEO MEMORY,INTEG AUDIO, INTEG	220-0499	4	0	0	No Replacement
R-319558CR	09/21/98	Credit	LEXMARK INTERNATIONA	VIRTUAL JETPRINTER SUN SOLARIS CD-R	16A0194	1	1	0	No Replacement

FIG. 132 A



R-311037CR	06/01/98	Credit	DELL	DELL P6266 GX1/MT BASE (66MHZFSB) W/4MB INTG VIDEO MEMORY,INTG AUDIO, 512K CACHE	220-0503	5	0	0	No Replacement
R-303978CR	03/30/98	Lost in transit (RPL MWS)(CLAIM)	COMPAQ SERVERS	PROLIANT 6500R 6/200 128MB M1-512K NOHD RM FS 16XCD	241700-001	1	0	0	No Replacement

FIG. 132 B

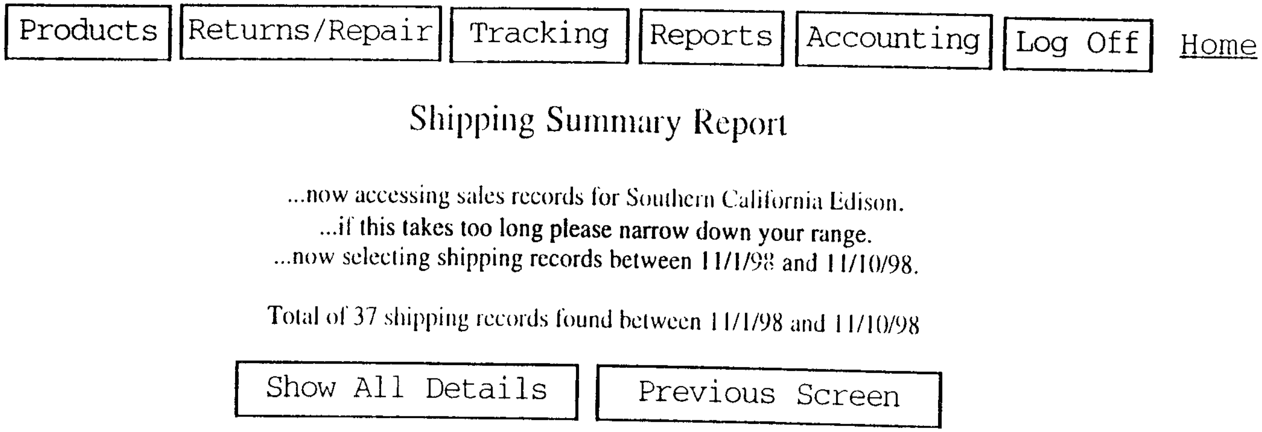


Shipping Reports

Please specify the date range for your shipping report.

between: Nov ∇ 19 ∇ 1998 ∇ and: Nov ∇ 19 ∇ 1998 ∇

FIG. 133



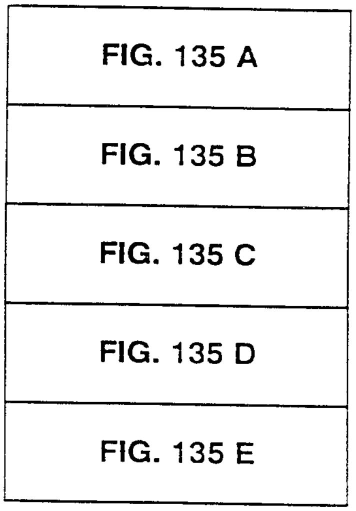
Shipping Summary Report

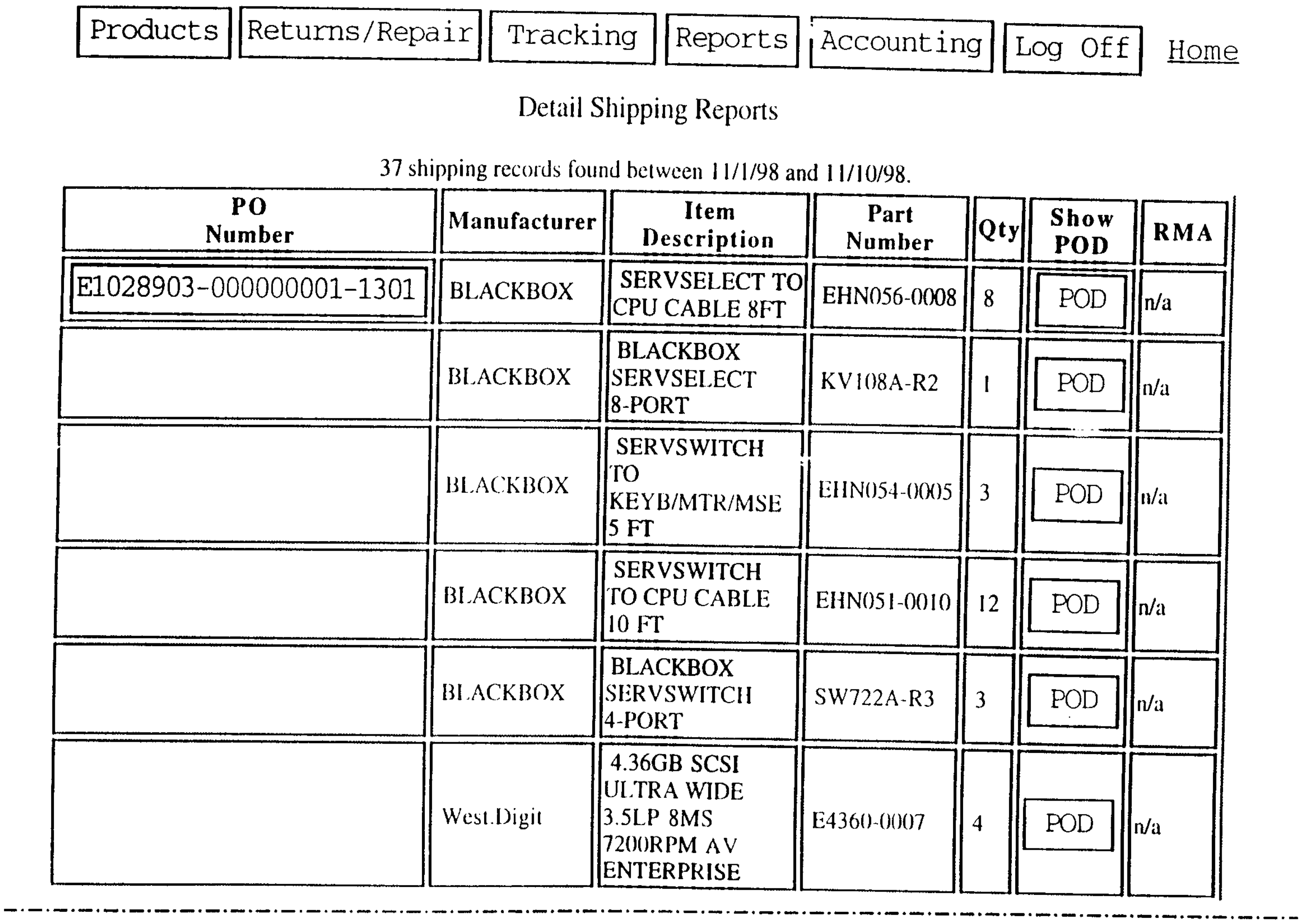
...now accessing sales records for Southern California Edison.
...if this takes too long please narrow down your range.
...now selecting shipping records between 11/1/98 and 11/10/98.

Total of 37 shipping records found between 11/1/98 and 11/10/98

FIG. 134

FIG. 135



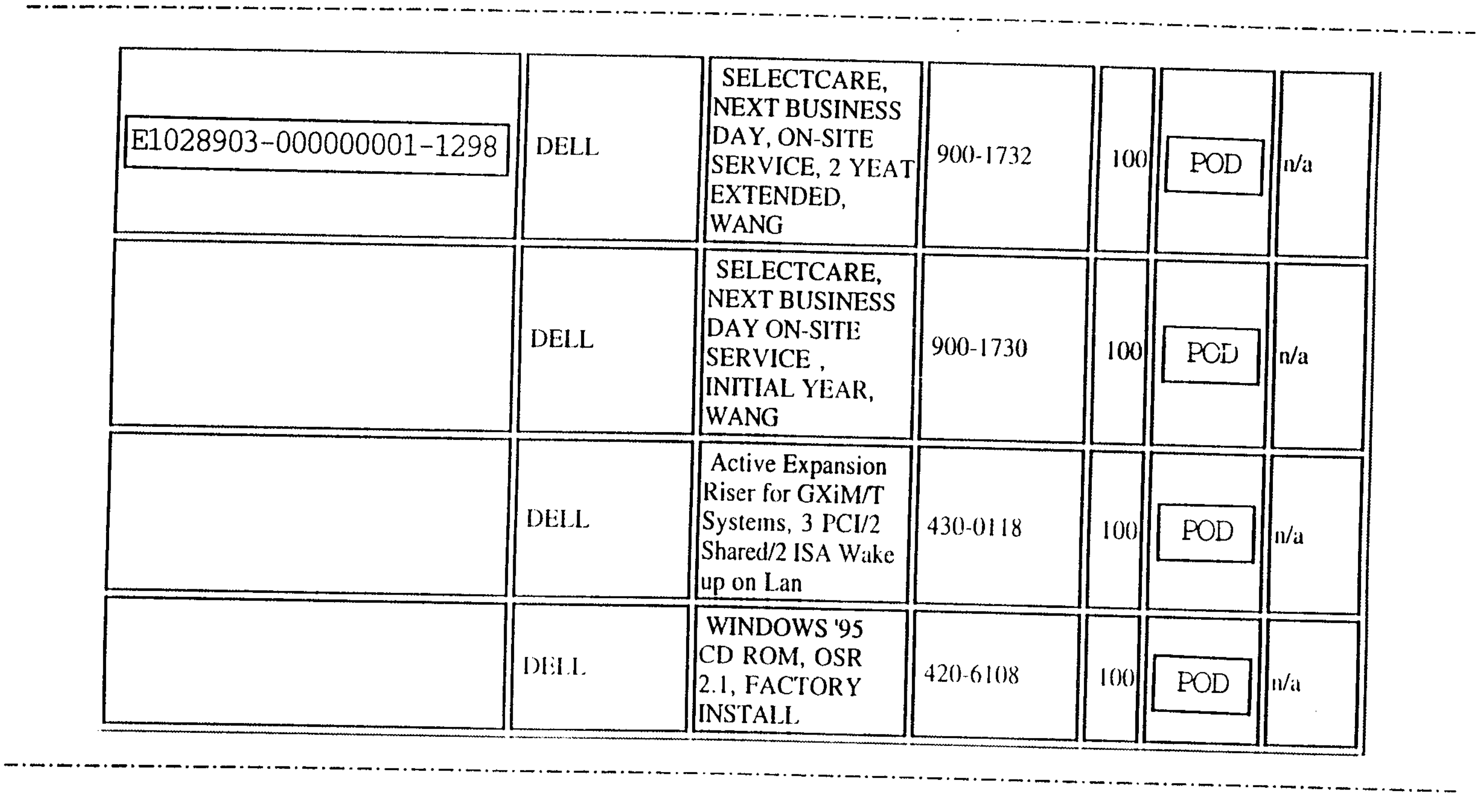


Detail Shipping Reports

37 shipping records found between 11/1/98 and 11/10/98.

PO Number	Manufacturer	Item Description	Part Number	Qty	Show POD	RMA
E1028903-000000001-1301	BLACKBOX	SERVSELECT TO CPU CABLE 8FT	EHN056-0008	8	POD	n/a
	BLACKBOX	BLACKBOX SERVSELECT 8-PORT	KV108A-R2	1	POD	n/a
	BLACKBOX	SERVSWITCH TO KEYB/MTR/MSE 5 FT	EHN054-0005	3	POD	n/a
	BLACKBOX	SERVSWITCH TO CPU CABLE 10 FT	EHN051-0010	12	POD	n/a
	BLACKBOX	BLACKBOX SERVSWITCH 4-PORT	SW722A-R3	3	POD	n/a
	West.Digit	4.36GB SCSI ULTRA WIDE 3.5LP 8MS 7200RPM AV ENTERPRISE	E4360-0007	4	POD	n/a

FIG. 135 A



E1028903-000000001-1298	DELL	SELECTCARE, NEXT BUSINESS DAY, ON-SITE SERVICE, 2 YEAT EXTENDED, WANG	900-1732	100	POD	n/a
	DELL	SELECTCARE, NEXT BUSINESS DAY ON-SITE SERVICE , INITIAL YEAR, WANG	900-1730	100	POD	n/a
	DELL	Active Expansion Riser for GXiM/T Systems, 3 PCI/2 Shared/2 ISA Wake up on Lan	430-0118	100	POD	n/a
	DELL	WINDOWS '95 CD ROM, OSR 2.1, FACTORY INSTALL	420-6108	100	POD	n/a

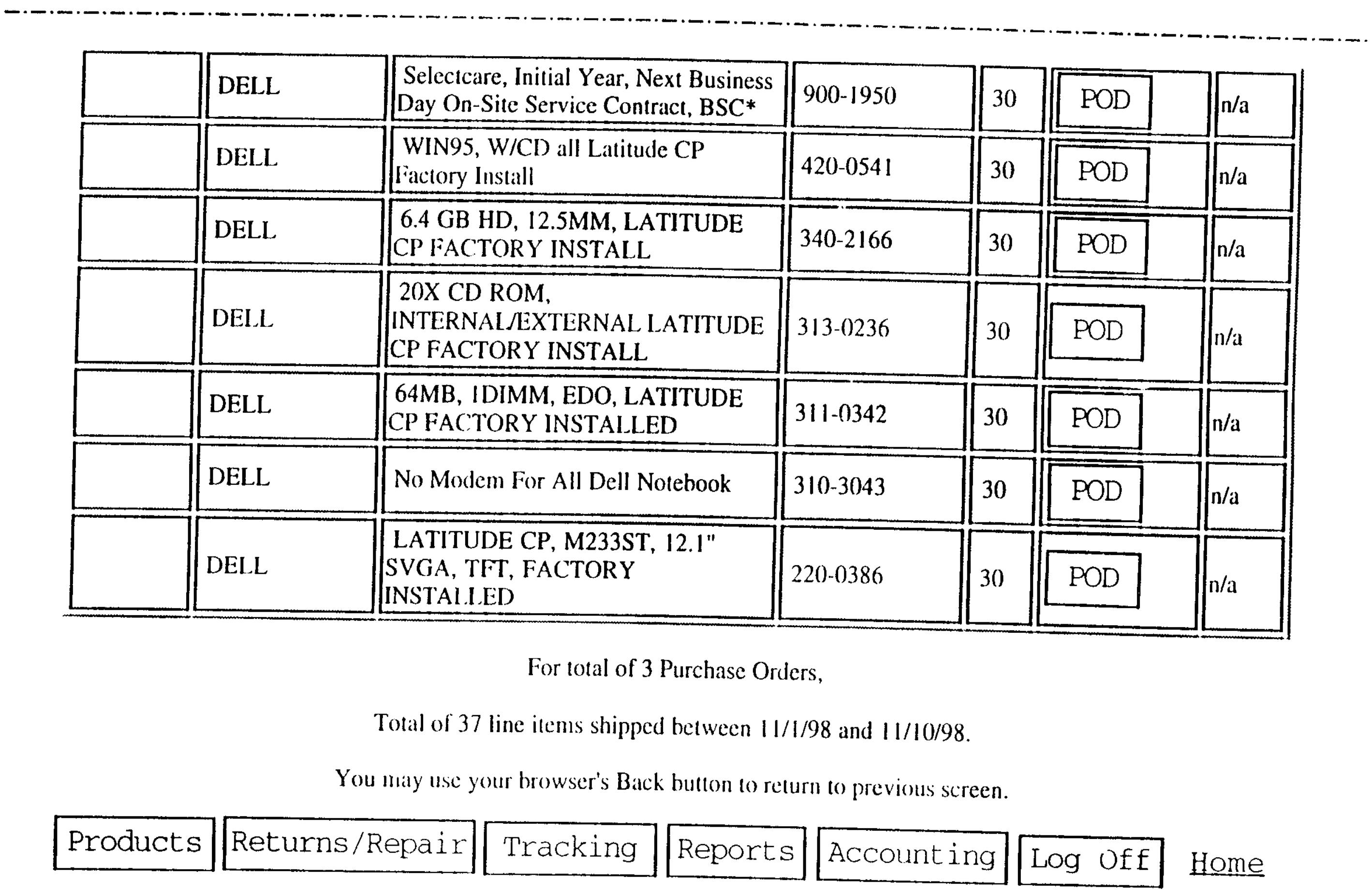
FIG. 135 B

	DELL	FAT32, FILE SYSTEM, WINDOWS '9X, FACTORY INSTALL	420-0137	100	POD	n/a
	DELL	6.4GB IDE HARD DRIVE, GX1, M/T, 350+ MHZ, FACTORY INSTALL	340-0740	100	POD	n/a
	DELL	3.5" 1.44MB FLOPPY DRIVE, FACTORY INSTALL	340-0701	100	POD	n/a
	DELL	MONITOR OPTION-NONE	320-3316	100	POD	n/a
	DELL	14-32X CD ROM, IDE, FACTORY INSTALL	313-0524	100	POD	n/a
	DELL	64MB, NON-ECC,SDRAM, 1 DIMM, UPGRADE, GX1, 350+MHZ, FACTORY INSTALL	311-0515	100	POD	n/a
	DELL	64MB, NON-ECC, SDRAM, 1 DIMM, 100MHZ, GXI, 350+ MHZ	311-0509	100	POD	n/a
	DELL	REDUCED DOCUMENTATION FOR GXaEM/GNL SYSTEMS, FACTORY INSTALL	310-2268	100	POD	n/a
	DELL	PERFORMANCE 104 KEY KEYBOARD FOR WINDOWS 95 FACTORY INSTALL	310-0038	100	POD	n/a
	DELL	MICROSOFT SYSTEM MOUSE	310-0019	100	POD	n/a

FIG. 135 C

	DELL	DELL P6400GX1/MT+ BASE(100MHZ FSB)W/4MB INTEG VIDEO MEMORY & AUDIO, 512K CACHE	220-0501	100	POD	n/a
E1028903-000000001-1299	DELL	MOUSE MSE SER &PS/2	36637-41	30	POD	n/a
	DELL	Performance 104 Key Keyboard for Windows 95. Customer Install	310-0039	30	POD	n/a
	DELL	DELL INTEGRATION FEE	365-0366	30	POD	n/a
	DELL	DELL PLUS ROUTIN SKU	365-0257	30	POD	n/a
	DELL	DELLPLUS SCE CONSIGNED WINDOWS 95 IMAGE FOR THE LATITUDE CP, FACTORY INSTALLED	360-7371	30	POD	n/a
	DELL	DP CONSIGNED LABEL SCE	360-5087	30	POD	n/a
	DELL	DELL PLUS INFO SKU MANUAL SFTWARE INSTALLATION	360-4801	30	POD	n/a

FIG. 135 D



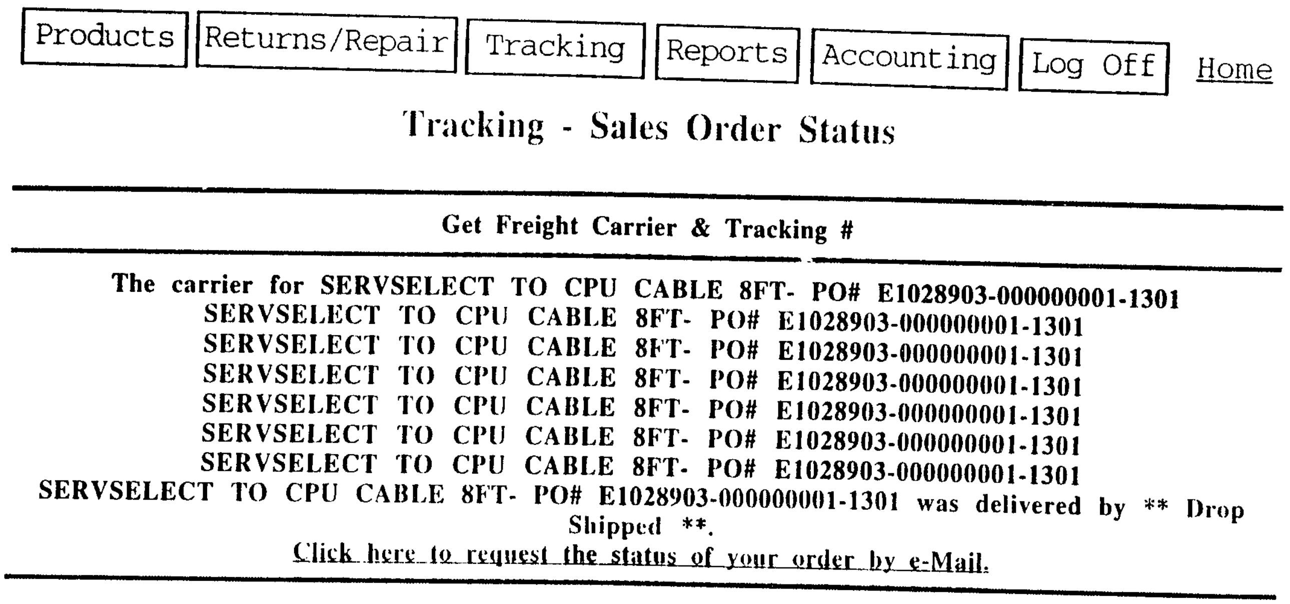
	DELL	Selectcare, Initial Year, Next Business Day On-Site Service Contract, BSC*	900-1950	30	POD	n/a
	DELL	WIN95, W/CD all Latitude CP Factory Install	420-0541	30	POD	n/a
	DELL	6.4 GB HD, 12.5MM, LATITUDE CP FACTORY INSTALL	340-2166	30	POD	n/a
	DELL	20X CD ROM, INTERNAL/EXTERNAL LATITUDE CP FACTORY INSTALL	313-0236	30	POD	n/a
	DELL	64MB, 1DIMM, EDO, LATITUDE CP FACTORY INSTALLED	311-0342	30	POD	n/a
	DELL	No Modem For All Dell Notebook	310-3043	30	POD	n/a
	DELL	LATITUDE CP, M233ST, 12.1" SVGA, TFT, FACTORY INSTALLED	220-0386	30	POD	n/a

For total of 3 Purchase Orders,

Total of 37 line items shipped between 11/1/98 and 11/10/98.

You may use your browser's Back button to return to previous screen.

FIG. 135 E



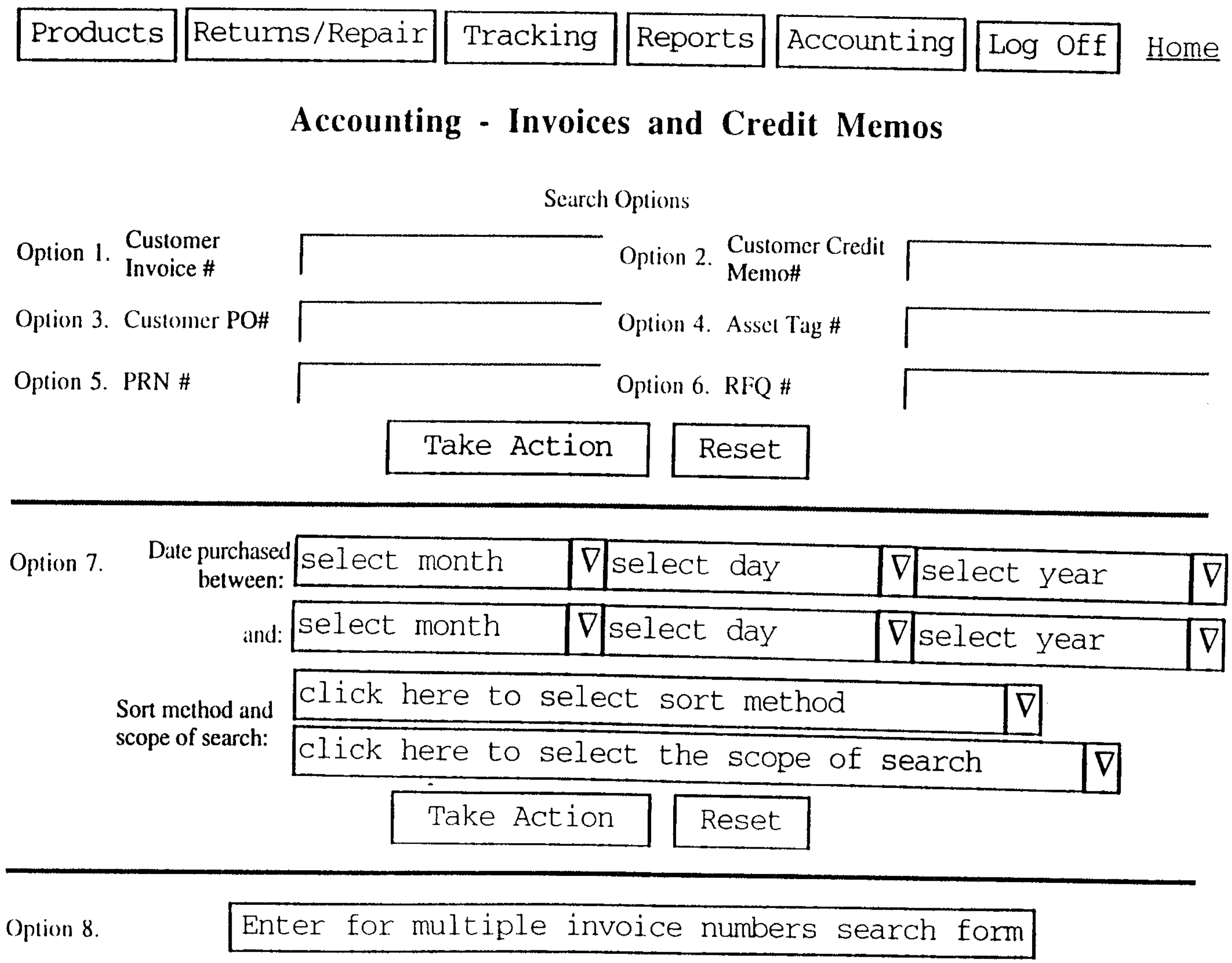
Tracking - Sales Order Status

Get Freight Carrier & Tracking #

The carrier for SERVSELECT TO CPU CABLE 8FT- PO# E1028903-000000001-1301
SERVSELECT TO CPU CABLE 8FT- PO# E1028903-000000001-1301
SERVSELECT TO CPU CABLE 8FT- PO# E1028903-000000001-1301
SERVSELECT TO CPU CABLE 8FT- PO# E1028903-000000001-1301
SERVSELECT TO CPU CABLE 8FT- PO# E1028903-000000001-1301
SERVSELECT TO CPU CABLE 8FT- PO# E1028903-000000001-1301
SERVSELECT TO CPU CABLE 8FT- PO# E1028903-000000001-1301
SERVSELECT TO CPU CABLE 8FT- PO# E1028903-000000001-1301 was delivered by ** Drop Shipped **.

Click here to request the status of your order by e-Mail.

FIG. 136



Accounting - Invoices and Credit Memos

Search Options

Option 1. Customer Invoice #

Option 2. Customer Credit Memo#

Option 3. Customer PO#

Option 4. Asset Tag #

Option 5. PRN #

Option 6. RFQ #

Option 7. Date purchased between: select month ▽ select day ▽ select year ▽

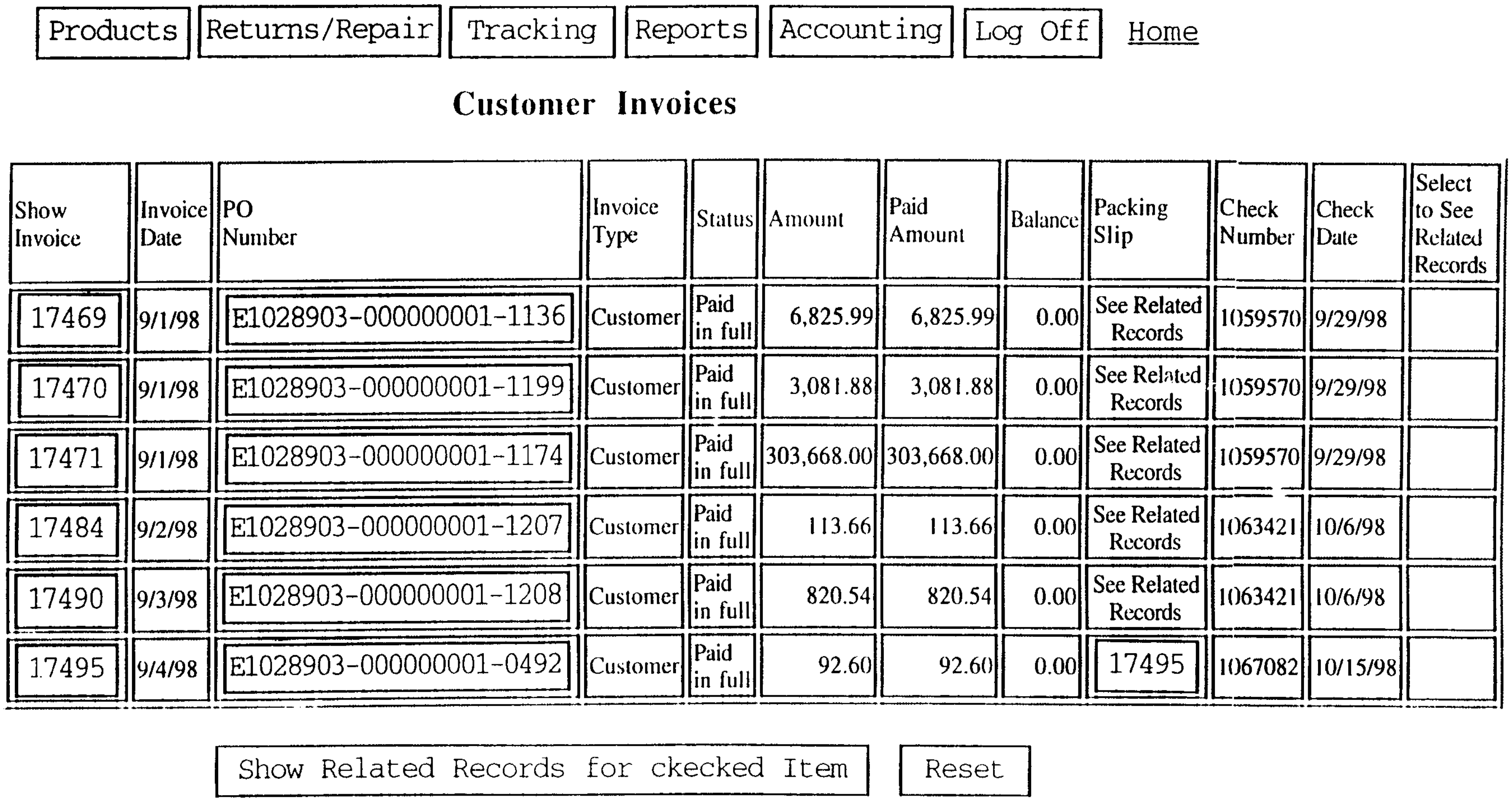
and: select month ▽ select day ▽ select year ▽

Sort method and scope of search: click here to select sort method ▽

click here to select the scope of search ▽

Option 8. Enter for multiple invoice numbers search form

FIG. 137

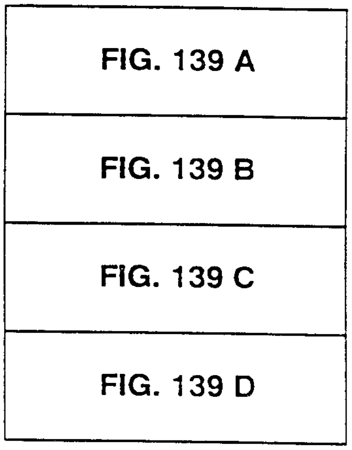


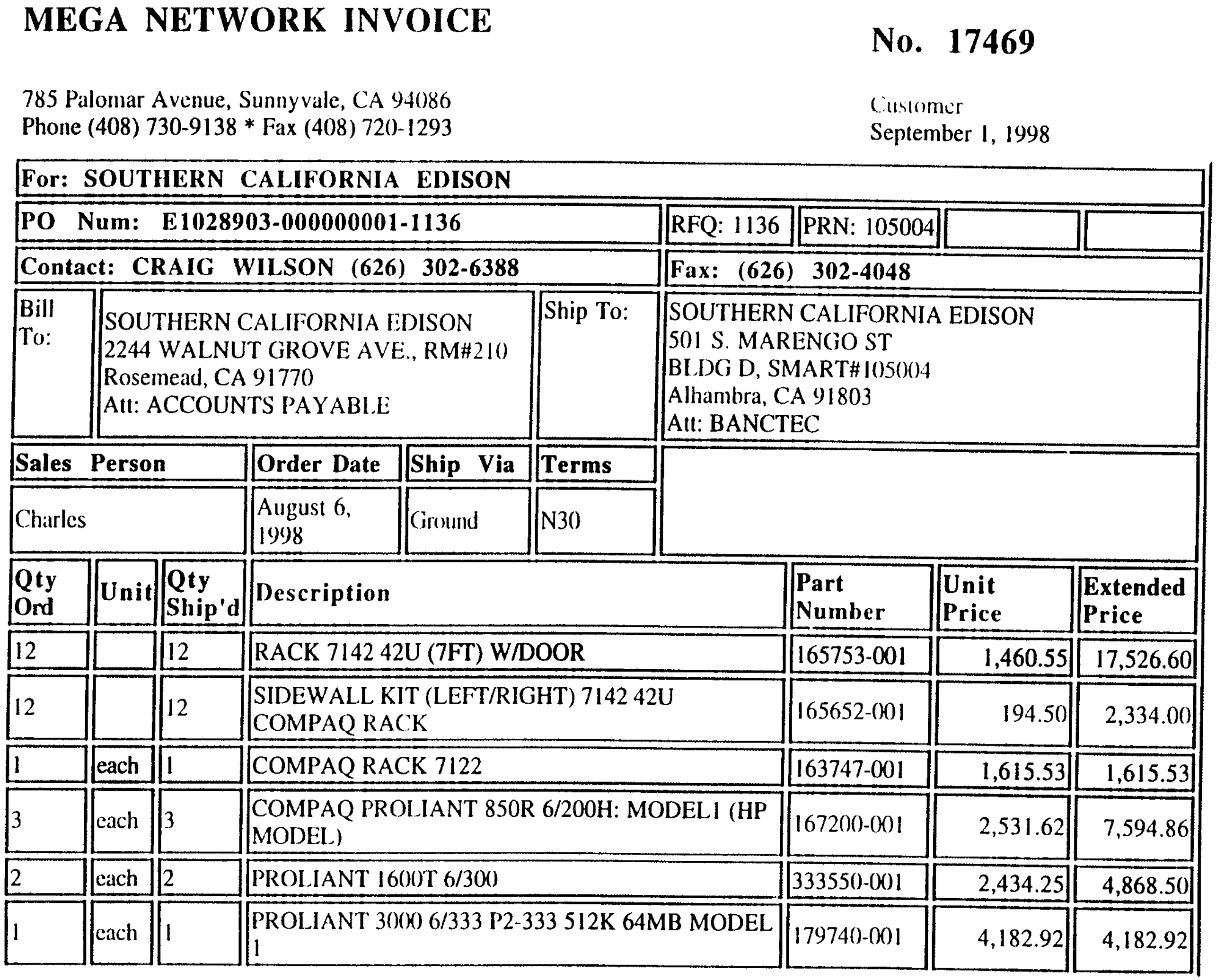
Customer Invoices

Show Invoice	Invoice Date	PO Number	Invoice Type	Status	Amount	Paid Amount	Balance	Packing Slip	Check Number	Check Date	Select to See Related Records
17469	9/1/98	E1028903-000000001-1136	Customer	Paid in full	6,825.99	6,825.99	0.00	See Related Records	1059570	9/29/98	☐
17470	9/1/98	E1028903-000000001-1199	Customer	Paid in full	3,081.88	3,081.88	0.00	See Related Records	1059570	9/29/98	☐
17471	9/1/98	E1028903-000000001-1174	Customer	Paid in full	303,668.00	303,668.00	0.00	See Related Records	1059570	9/29/98	☐
17484	9/2/98	E1028903-000000001-1207	Customer	Paid in full	113.66	113.66	0.00	See Related Records	1063421	10/6/98	☐
17490	9/3/98	E1028903-000000001-1208	Customer	Paid in full	820.54	820.54	0.00	See Related Records	1063421	10/6/98	☐
17495	9/4/98	E1028903-000000001-0492	Customer	Paid in full	92.60	92.60	0.00	17495	1067082	10/15/98	☐

FIG. 138

FIG. 139





MEGA NETWORK INVOICE

No. 17469

785 Palomar Avenue, Sunnyvale, CA 94086
Phone (408) 730-9138 * Fax (408) 720-1293

Customer
September 1, 1998

For: SOUTHERN CALIFORNIA EDISON				
PO Num: E1028903-000000001-1136	RFQ: 1136	PRN: 105004		
Contact: CRAIG WILSON (626) 302-6388	**Fax: (626) 302-4048**			

Bill To:	SOUTHERN CALIFORNIA EDISON 2244 WALNUT GROVE AVE., RM#210 Rosemead, CA 91770 Att: ACCOUNTS PAYABLE	Ship To:	SOUTHERN CALIFORNIA EDISON 501 S. MARENGO ST BLDG D, SMART#105004 Alhambra, CA 91803 Att: BANCTEC

Sales Person	**Order Date**	**Ship Via**	**Terms**
Charles	August 6, 1998	Ground	N30

Qty Ord	**Unit**	**Qty Ship'd**	**Description**	**Part Number**	**Unit Price**	**Extended Price**
12		12	RACK 7142 42U (7FT) W/DOOR	165753-001	1,460.55	17,526.60
12		12	SIDEWALL KIT (LEFT/RIGHT) 7142 42U COMPAQ RACK	165652-001	194.50	2,334.00
1	each	1	COMPAQ RACK 7122	163747-001	1,615.53	1,615.53
3	each	3	COMPAQ PROLIANT 850R 6/200H: MODEL1 (HP MODEL)	167200-001	2,531.62	7,594.86
2	each	2	PROLIANT 1600T 6/300	333550-001	2,434.25	4,868.50
1	each	1	PROLIANT 3000 6/333 P2-333 512K 64MB MODEL 1	179740-001	4,182.92	4,182.92

FIG. 139 A

4	each	4	PROLIANT 3000R 6/333 P2-333 512K 64MB MODEL 1	179750-001	4,604.21	18,416.84
18		18	PROLIANT 6500 6/200 128MB M1-512K NOHD RM FS 16XCD	241700-001	11,825.84	212,865.12
2	each	2	PROLIANT 7000 6/200-512: MODEL 1S-128 (128 MB)	273350-005	13,778.39	27,556.78
60		60	6/200 512K PROC OPT KIT PROLIANT 6500 7000	169470-B21	1,460.55	87,633.00
4	each	4	6/300 PENTIUM II 512K PROCESSOR OPTION KIT	298047-B21	888.87	3,555.48
2	each	2	PROLIANT 3000 6/333 512K UPGRADE KIT	333555-B21	1,150.30	2,300.60
77		77	4.3GB PLUGGABLE W/ULTRA 1.0IN 7200RPM SCSI-3 HD	272577-001	583.17	44,904.09
123		123	9.1GB PLUGGABLE W/ULTRA 1.0IN SCSI-3 7200RPM HD	313706-B21	1,011.39	124,400.97
6	each	6	18.20GB PLUGGABLE WIDE-ULTRA SCSI3 DRIVE (1.6")	313756-B21	1,946.35	11,678.10
6		6	PROLIANT STORAGE SYS /U1 RM SINGLE BUS ULTRAWIDE	304100-B21	1,777.74	10,666.44
6		6	REDUN P/S KIT PROLIANT STORAGE/F	224206-001	522.86	3,137.16
34		34	SMART-2DH PCI 2CH ARRAY CONTROLLER W/16MB CACHE	295242-B21	1,702.41	57,881.94
6	each	6	128MB EDO MEM EXPANSION KIT (1 X 128MB, 60 NS)	225484-001	652.54	3,915.24

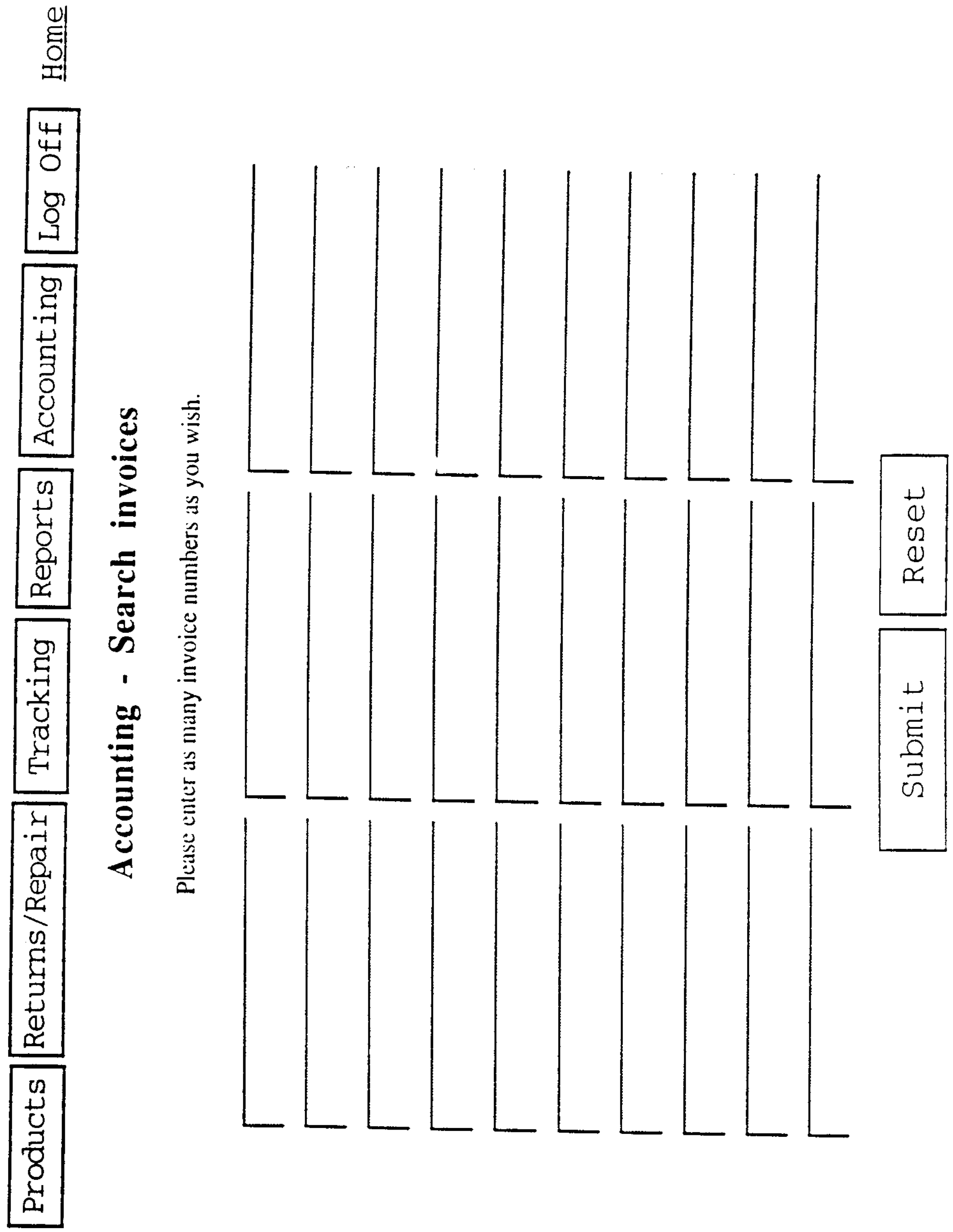
FIG. 139 B

2		2	256MB DIMM 60NS BUFFERED ECC EDO 2500 PROLIANT	271910-001	1,388.72	2,777.44
5		5	512MB KIT (4X128MB DIMMS) 60NS EDO ECC PROLIANT	241773-B21	2,587.11	12,935.55
3	each	3	512 MB MEM EXPANSION KIT (4 X 128 MB FP DIMMS)	219285-001	2,778.50	8,335.50
14		14	MULTISCAN V55 15IN 13.7VIS .28MM 10X7 COLMON	308006-001	223.78	3,132.92
13		13	RACK INTERNAL TRACKBALL KEYBOARD RM	185152-001	152.67	1,984.71
32		32	RM 9 FOOT CPU TO SWITCH CABLE KIT (backorder on part# 165638-002 20 ft cable)	165638-001	67.97	2,175.04
12		12	RM 4PT KYBD MON MOUSE SWBX 1U	242694-001	888.87	10,666.44
13		13	RACK MONITOR / UTILITY SHELF KIT	303606-B21	103.52	1,345.76
13		13	RACK KEYBOARD DRAWER SHELF KIT	303607-B21	261.43	3,398.59
19	each	19	COMPAQ REMOTE INSIGHT BOARD/PCI	294013-001	759.07	14,422.33
26		26	MOLPA NT SVR V4.0 WNT 15 UNITS	227-00367	579.32	15,062.32
2		2	35/70GB DLT DRIVE INT BARE TD SCSI-3 I/F	242520-B21	5,214.01	10,428.02
2	each	2	DLT 35/70 TAPE CARTRIDGES (7-PACK)	295192-B21	611.75	1,223.50
1	each	1	FIBER CHANNEL ARRAY KIT	223100-001	6,305.76	6,305.76
1	each	1	FIBER CHANNEL STORAGE HUB 7	234453-001	1,019.58	1,019.58

FIG. 139 C

1	each	1	FIBER CHANNEL HOST CONTROLLER KIT/P	223180-B21	1,673.17	1,673.17
4	each	4	HOT-PLUG DRIVE CAGE (5 X 1) OPTION KIT	271912-001	156.86	627.44
2	each	2	COMPAQ TOWER TO RACK CONVERSION KIT	149068-001	418.28	836.56
1	each	1	RACK-MOUNTABLE UPS MODEL R1500	242704-001	962.07	962.07
13		13	512MB KIT (4X128MB DIMMS) 60NS EDO ECC PROLIANT	241773-B21	2,587.11	33,632.43
13	each	13	256 MB MEM KIT (2 X 128 MB BUFFERED EDO DIMMS)	149026-B21	1,342.72	17,455.36
12	each	12	COMPAQ REMOTE INSIGHT BOARD/PCI	294013-001	759.07	9,108.84
Comments					Sale Amount	6,305.76
					Tax @	520.23
					Installation	
					Freight	
					Balance Due	6,825.99

FIG. 139 D



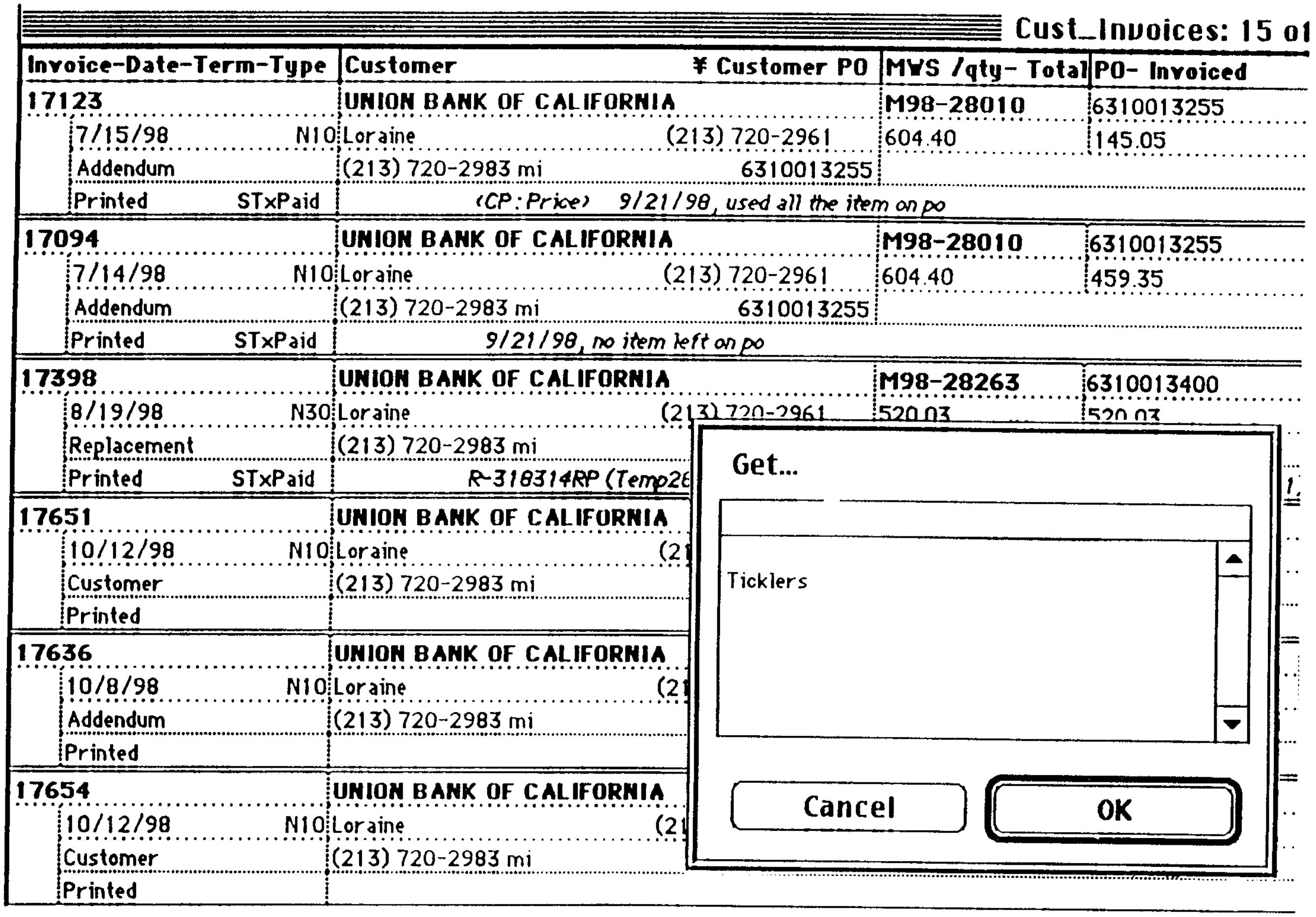
Accounting - Search invoices

Please enter as many invoice numbers as you wish.

FIG. 140

FIG. 141

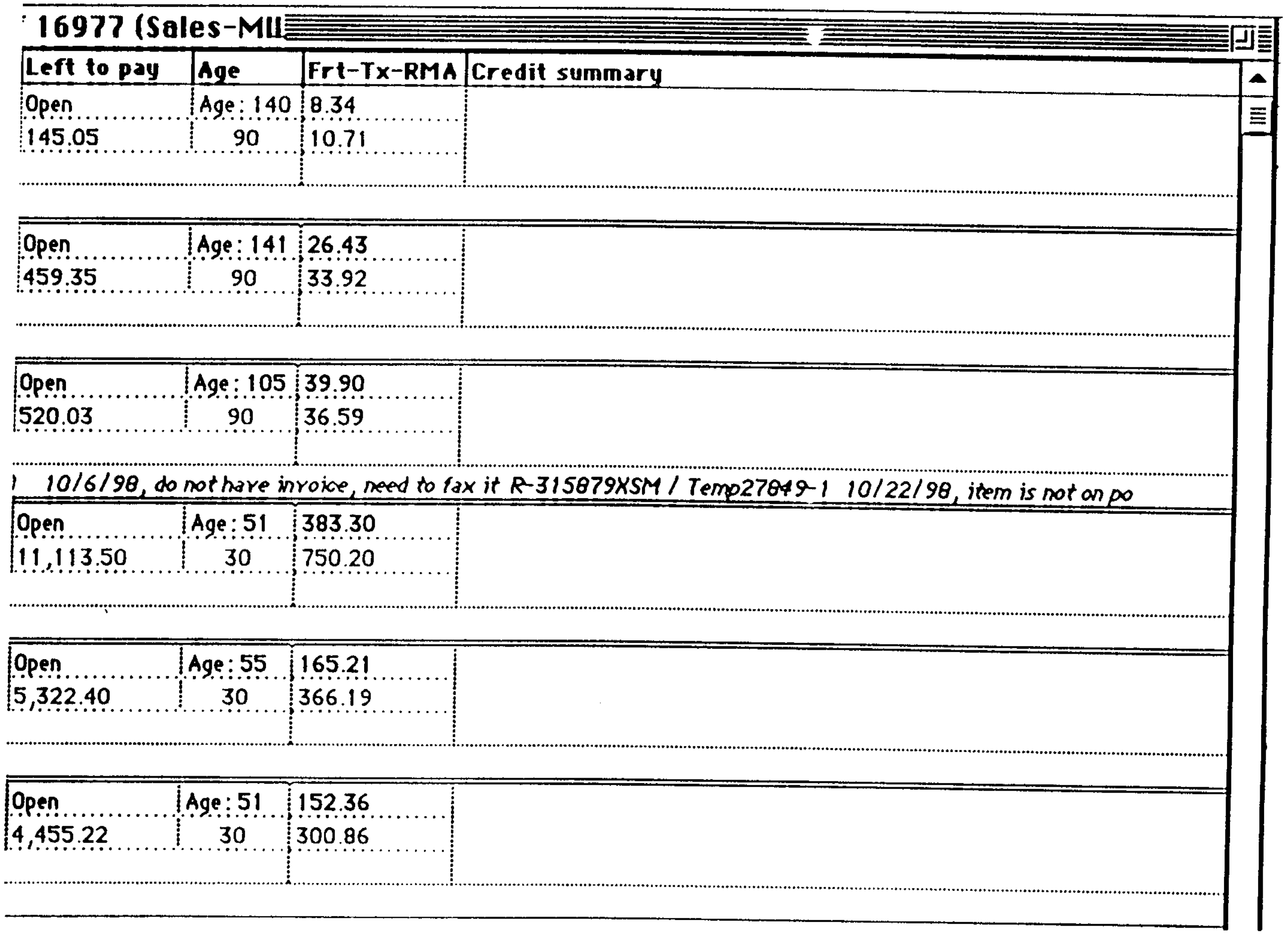
FIG. 141A	FIG. 141B
FIG. 141 C	FIG. 141 D



Cust_Invoices: 15 o

Invoice-Date-Term-Type	Customer	¥ Customer PO	MWS /qty- Total	PO- Invoiced
17123	UNION BANK OF CALIFORNIA		M98-28010	6310013255
7/15/98 N10	Loraine	(213) 720-2961	604.40	145.05
Addendum	(213) 720-2983 mi	6310013255		
Printed STxPaid	‹CP: Price› 9/21/98, used all the item on po			
17094	UNION BANK OF CALIFORNIA		M98-28010	6310013255
7/14/98 N10	Loraine	(213) 720-2961	604.40	459.35
Addendum	(213) 720-2983 mi	6310013255		
Printed STxPaid	9/21/98, no item left on po			
17398	UNION BANK OF CALIFORNIA		M98-28263	6310013400
8/19/98 N30	Loraine	(213) 720-2961	520.03	520.03
Replacement	(213) 720-2983 mi			
Printed STxPaid	R-318314RP (Temp2			
17651	UNION BANK OF CALIFORNIA			
10/12/98 N10	Loraine	(2		
Customer	(213) 720-2983 mi			
Printed				
17636	UNION BANK OF CALIFORNIA			
10/8/98 N10	Loraine	(2		
Addendum	(213) 720-2983 mi			
Printed				
17654	UNION BANK OF CALIFORNIA			
10/12/98 N10	Loraine	(2		
Customer	(213) 720-2983 mi			
Printed				

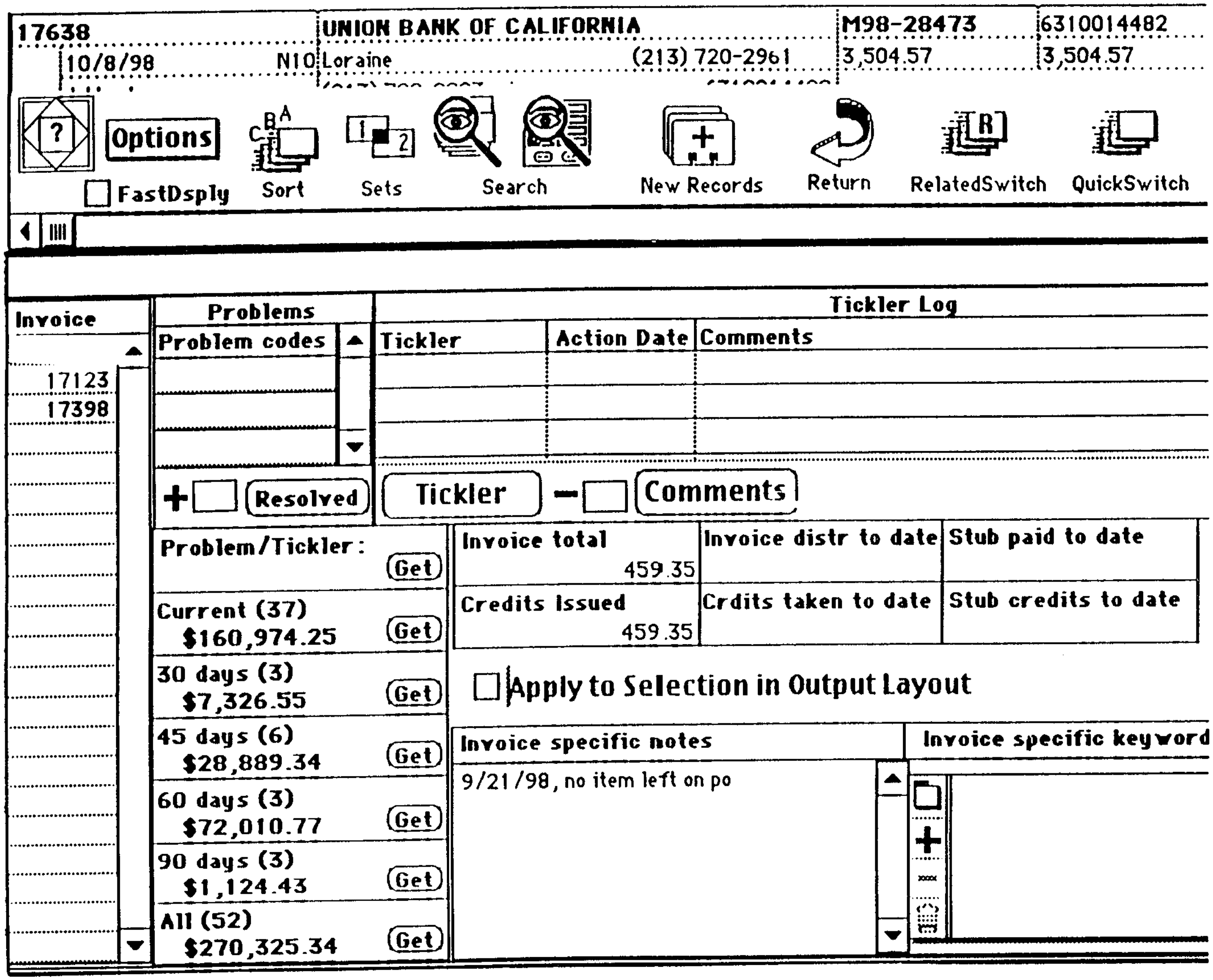
FIG. 141 A



16977 (Sales-MI

Left to pay	Age	Frt-Tx-RMA	Credit summary
Open 145.05	Age: 140 90	8.34 10.71	
Open 459.35	Age: 141 90	26.43 33.92	
Open 520.03	Age: 105 90	39.90 36.59	
10/6/98, do not have invoice, need to fax it R-315879XSM / Temp27849-1 10/22/98, item is not on po			
Open 11,113.50	Age: 51 30	383.30 750.20	
Open 5,322.40	Age: 55 30	165.21 366.19	
Open 4,455.22	Age: 51 30	152.36 300.86	

FIG. 141 B



17638
10/8/98 N10
UNION BANK OF CALIFORNIA
Loraine (213) 720-2961
M98-28473
3,504.57
6310014482
3,504.57

Invoice
17123
17398

Problems
Problem codes

Tickler Log		
Tickler	Action Date	Comments

Problem/Tickler:
Current (37) $160,974.25
30 days (3) $7,326.55
45 days (6) $28,889.34
60 days (3) $72,010.77
90 days (3) $1,124.43
All (52) $270,325.34

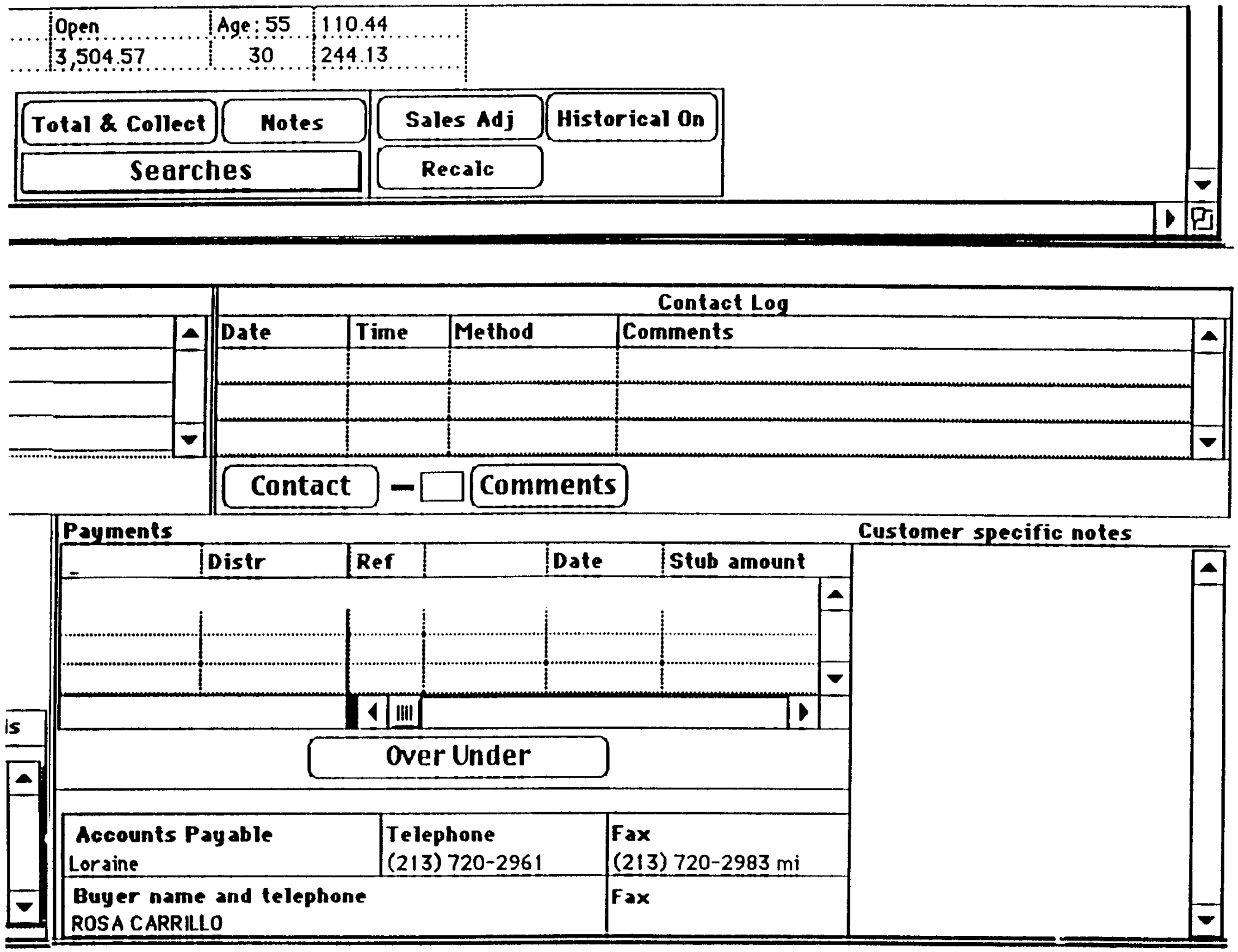
Invoice total 459.35	Invoice distr to date	Stub paid to date
Credits Issued 459.35	Crdits taken to date	Stub credits to date

☐ Apply to Selection in Output Layout

Invoice specific notes
9/21/98, no item left on po

Invoice specific keyword

FIG. 141 C



Open	Age: 55	110.44
3,504.57	30	244.13

Contact Log

Date	Time	Method	Comments

Payments

	Distr	Ref		Date	Stub amount

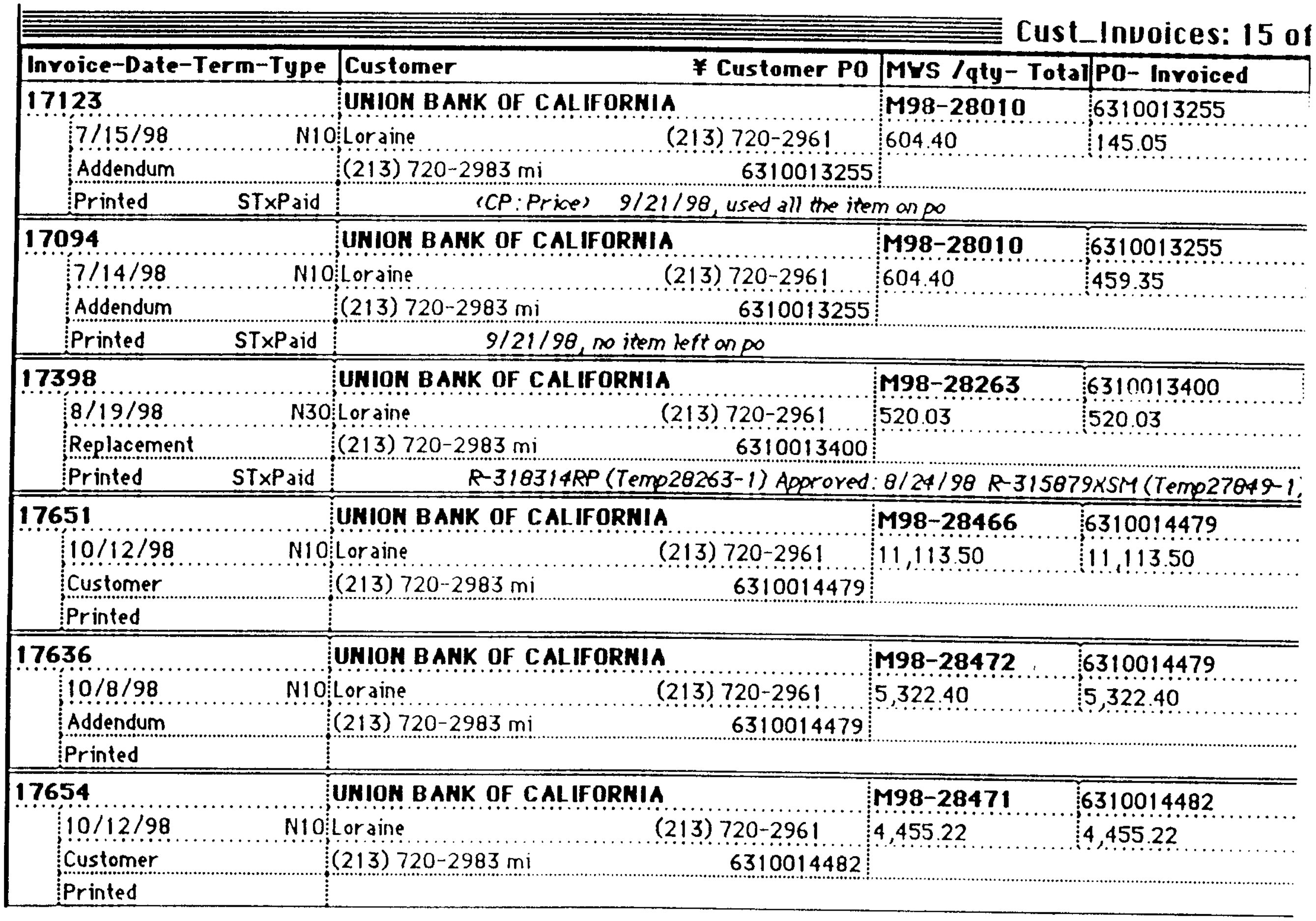
Accounts Payable	Telephone	Fax
Loraine	(213) 720-2961	(213) 720-2983 mi
Buyer name and telephone		Fax
ROSA CARRILLO		

Customer specific notes

FIG. 141 D

FIG.142

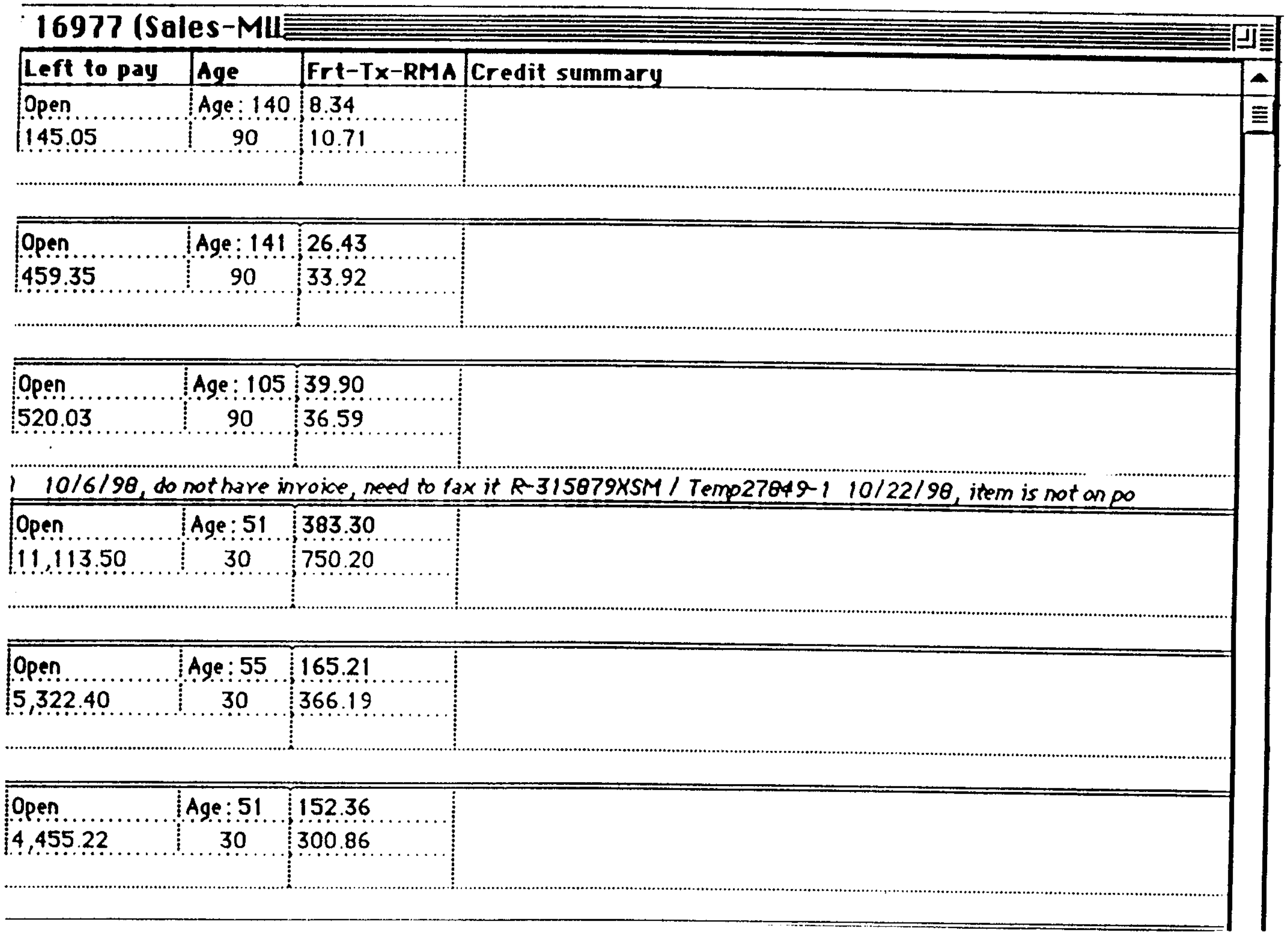
FIG. 142 A	FIG. 142 B
FIG. 142 C	FIG. 142 D



Cust_Invoices: 15 of

Invoice-Date-Term-Type		Customer	¥ Customer PO	MVS /qty- Total	PO- Invoiced
17123		**UNION BANK OF CALIFORNIA**		**M98-28010**	6310013255
7/15/98	N10	Loraine	(213) 720-2961	604.40	145.05
Addendum		(213) 720-2983 mi	6310013255		
Printed	STxPaid	*‹CP: Price› 9/21/98, used all the item on po*			
17094		**UNION BANK OF CALIFORNIA**		**M98-28010**	6310013255
7/14/98	N10	Loraine	(213) 720-2961	604.40	459.35
Addendum		(213) 720-2983 mi	6310013255		
Printed	STxPaid	*9/21/98, no item left on po*			
17398		**UNION BANK OF CALIFORNIA**		**M98-28263**	6310013400
8/19/98	N30	Loraine	(213) 720-2961	520.03	520.03
Replacement		(213) 720-2983 mi	6310013400		
Printed	STxPaid	*R-318314RP (Temp28263-1) Approved: 8/24/98 R-315879XSM (Temp27849-1,*			
17651		**UNION BANK OF CALIFORNIA**		**M98-28466**	6310014479
10/12/98	N10	Loraine	(213) 720-2961	11,113.50	11,113.50
Customer		(213) 720-2983 mi	6310014479		
Printed					
17636		**UNION BANK OF CALIFORNIA**		**M98-28472**	6310014479
10/8/98	N10	Loraine	(213) 720-2961	5,322.40	5,322.40
Addendum		(213) 720-2983 mi	6310014479		
Printed					
17654		**UNION BANK OF CALIFORNIA**		**M98-28471**	6310014482
10/12/98	N10	Loraine	(213) 720-2961	4,455.22	4,455.22
Customer		(213) 720-2983 mi	6310014482		
Printed					

FIG. 142 A



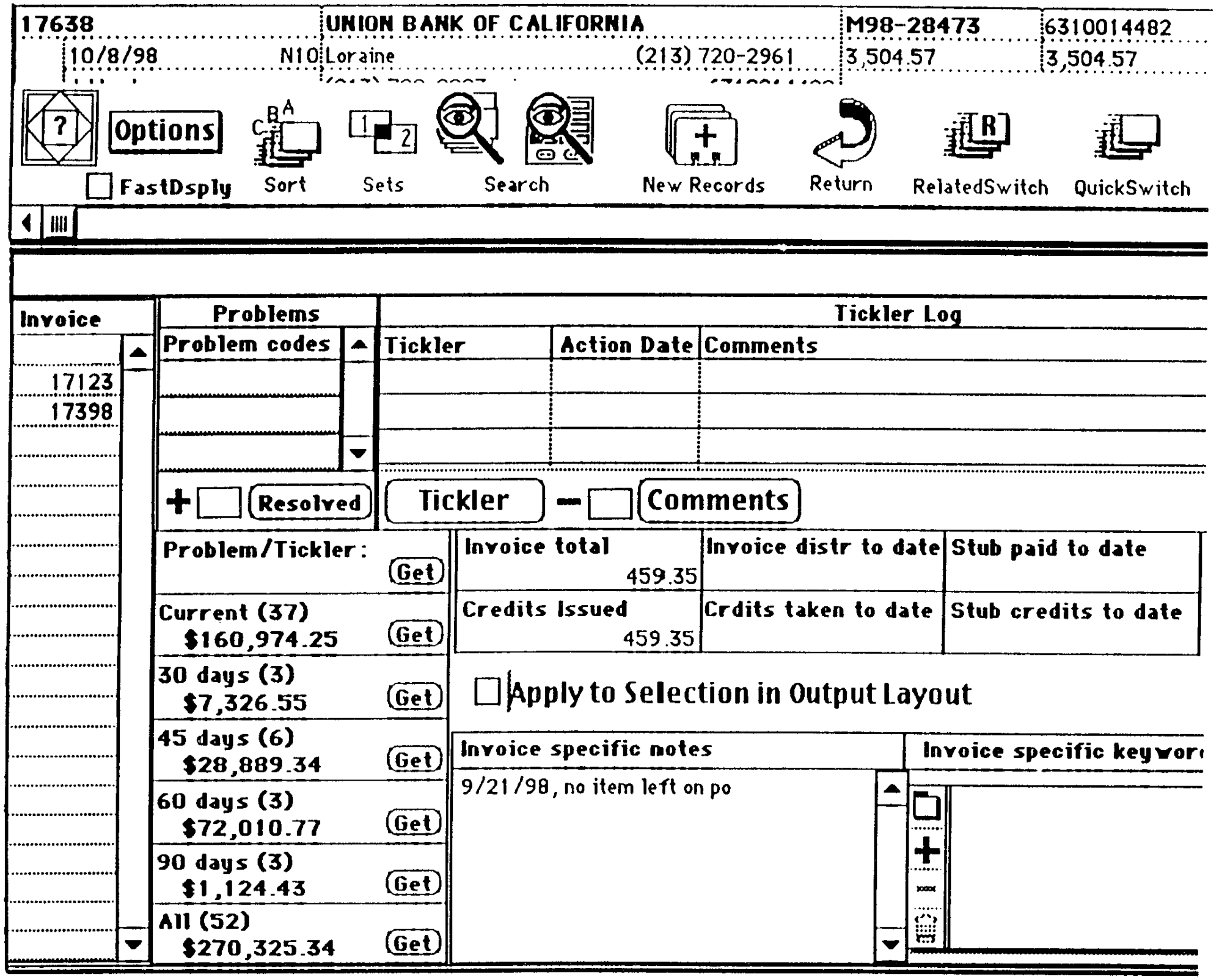
16977 (Sales-MI

Left to pay	Age	Frt-Tx-RMA	Credit summary
Open	Age: 140	8.34	
145.05	90	10.71	
Open	Age: 141	26.43	
459.35	90	33.92	
Open	Age: 105	39.90	
520.03	90	36.59	

) 10/6/98, do not have invoice, need to fax it R-315879XSM / Temp27849-1 10/22/98, item is not on po

Left to pay	Age	Frt-Tx-RMA	Credit summary
Open	Age: 51	383.30	
11,113.50	30	750.20	
Open	Age: 55	165.21	
5,322.40	30	366.19	
Open	Age: 51	152.36	
4,455.22	30	300.86	

FIG. 142 B



17638
10/8/98 N10
UNION BANK OF CALIFORNIA
Loraine (213) 720-2961
M98-28473
3,504.57
6310014482
3,504.57

Invoice
17123
17398

Problems
Problem codes

Tickler Log		
Tickler	Action Date	Comments

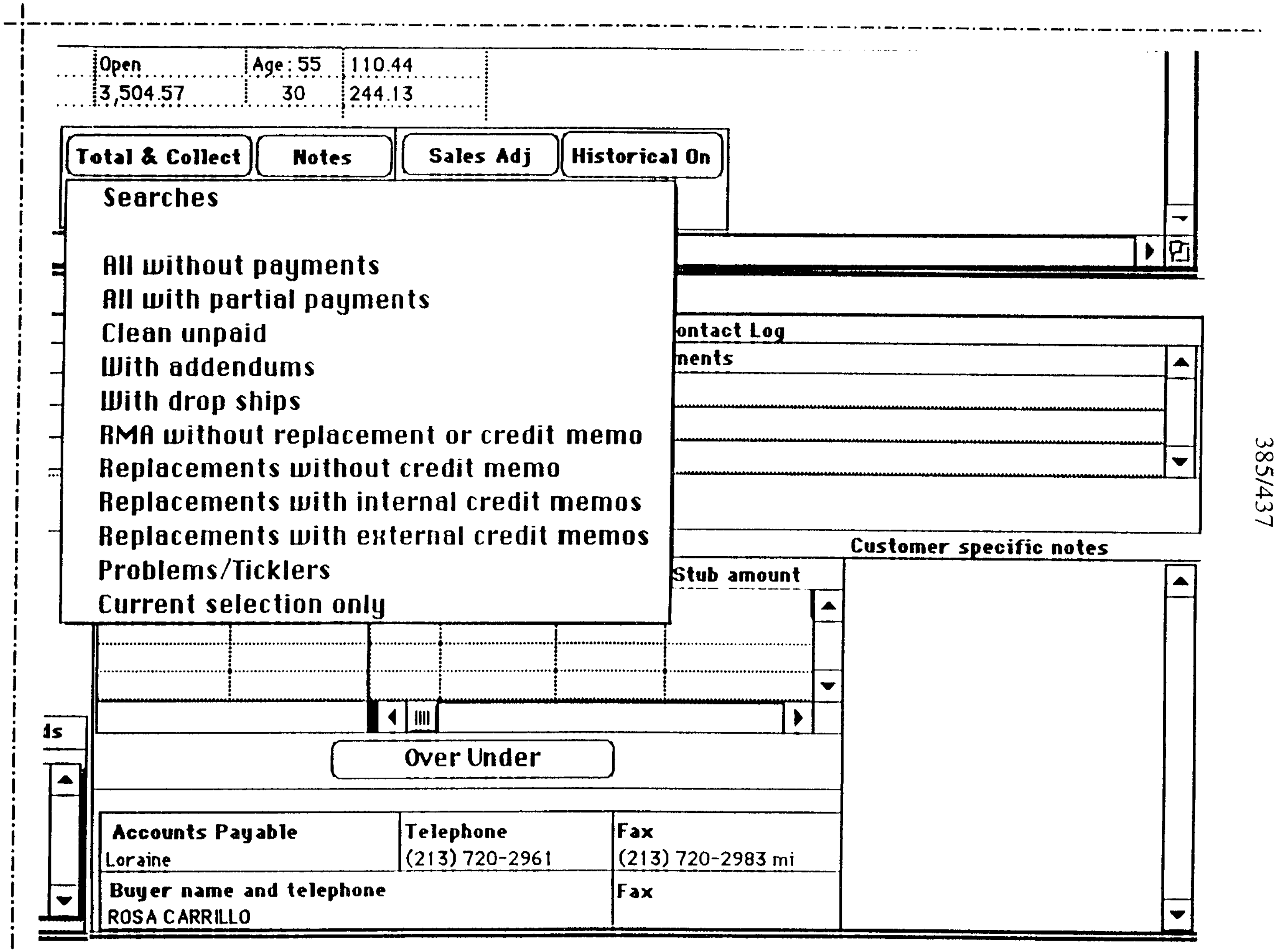
Problem/Tickler:	
Current (37) $160,974.25	Get
30 days (3) $7,326.55	Get
45 days (6) $28,889.34	Get
60 days (3) $72,010.77	Get
90 days (3) $1,124.43	Get
All (52) $270,325.34	Get

Invoice total	Invoice distr to date	Stub paid to date
459.35		
Credits Issued	Crdits taken to date	Stub credits to date
459.35		

☐ Apply to Selection in Output Layout

Invoice specific notes
9/21/98, no item left on po

FIG. 142 C



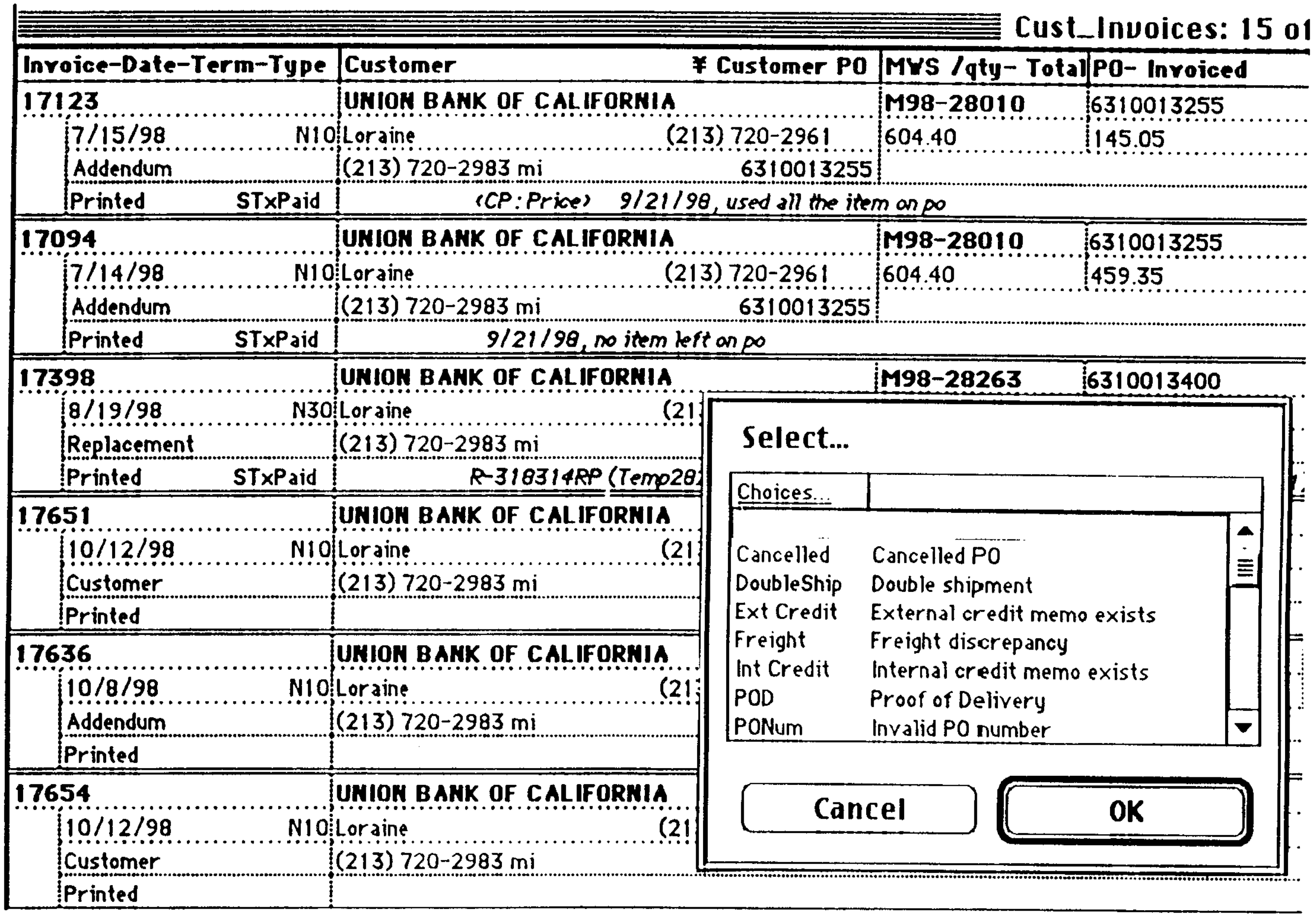
Open	Age: 55	110.44
3,504.57	30	244.13

Accounts Payable	Telephone	Fax
Loraine	(213) 720-2961	(213) 720-2983 mi
Buyer name and telephone		Fax
ROSA CARRILLO		

FIG. 142 D

FIG. 143

FIG. 143 A	FIG. 143 B
FIG. 143 C	FIG. 143 D



Cust_Invoices: 15 of

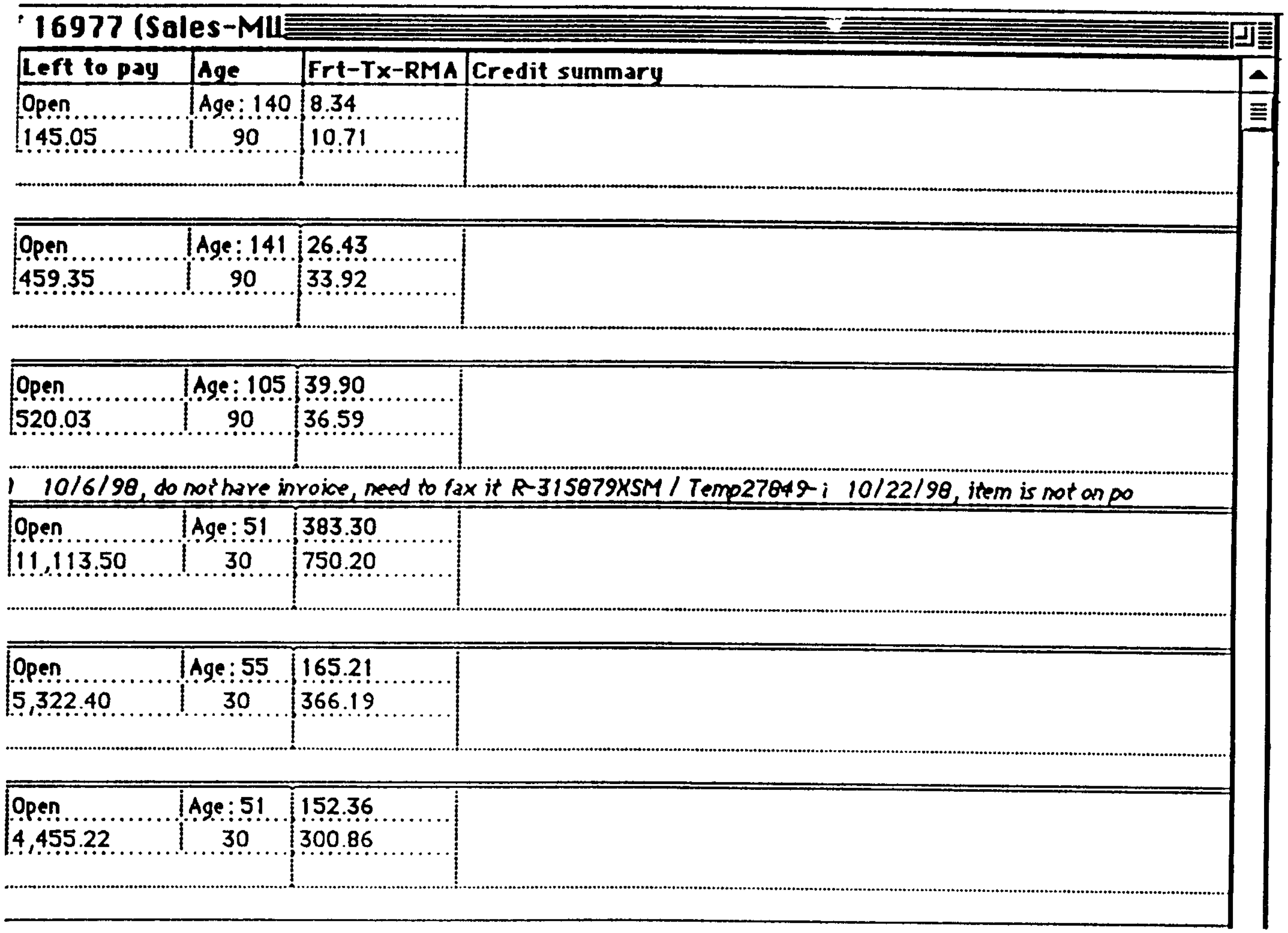
Invoice-Date-Term-Type	Customer	¥ Customer PO	MWS /qty- Total	PO- Invoiced
17123	UNION BANK OF CALIFORNIA		M98-28010	6310013255
7/15/98 N10	Loraine	(213) 720-2961	604.40	145.05
Addendum	(213) 720-2983 mi	6310013255		
Printed STxPaid	‹CP: Price› 9/21/98, used all the item on po			
17094	UNION BANK OF CALIFORNIA		M98-28010	6310013255
7/14/98 N10	Loraine	(213) 720-2961	604.40	459.35
Addendum	(213) 720-2983 mi	6310013255		
Printed STxPaid	9/21/98, no item left on po			
17398	UNION BANK OF CALIFORNIA		M98-28263	6310013400
8/19/98 N30	Loraine	(21		
Replacement	(213) 720-2983 mi			
Printed STxPaid	R-318314RP (Temp28			
17651	UNION BANK OF CALIFORNIA			
10/12/98 N10	Loraine	(21		
Customer	(213) 720-2983 mi			
Printed				
17636	UNION BANK OF CALIFORNIA			
10/8/98 N10	Loraine	(21		
Addendum	(213) 720-2983 mi			
Printed				
17654	UNION BANK OF CALIFORNIA			
10/12/98 N10	Loraine	(21		
Customer	(213) 720-2983 mi			
Printed				

Select...

Choices...

Cancelled	Cancelled PO
DoubleShip	Double shipment
Ext Credit	External credit memo exists
Freight	Freight discrepancy
Int Credit	Internal credit memo exists
POD	Proof of Delivery
PONum	Invalid PO number

FIG. 143 A



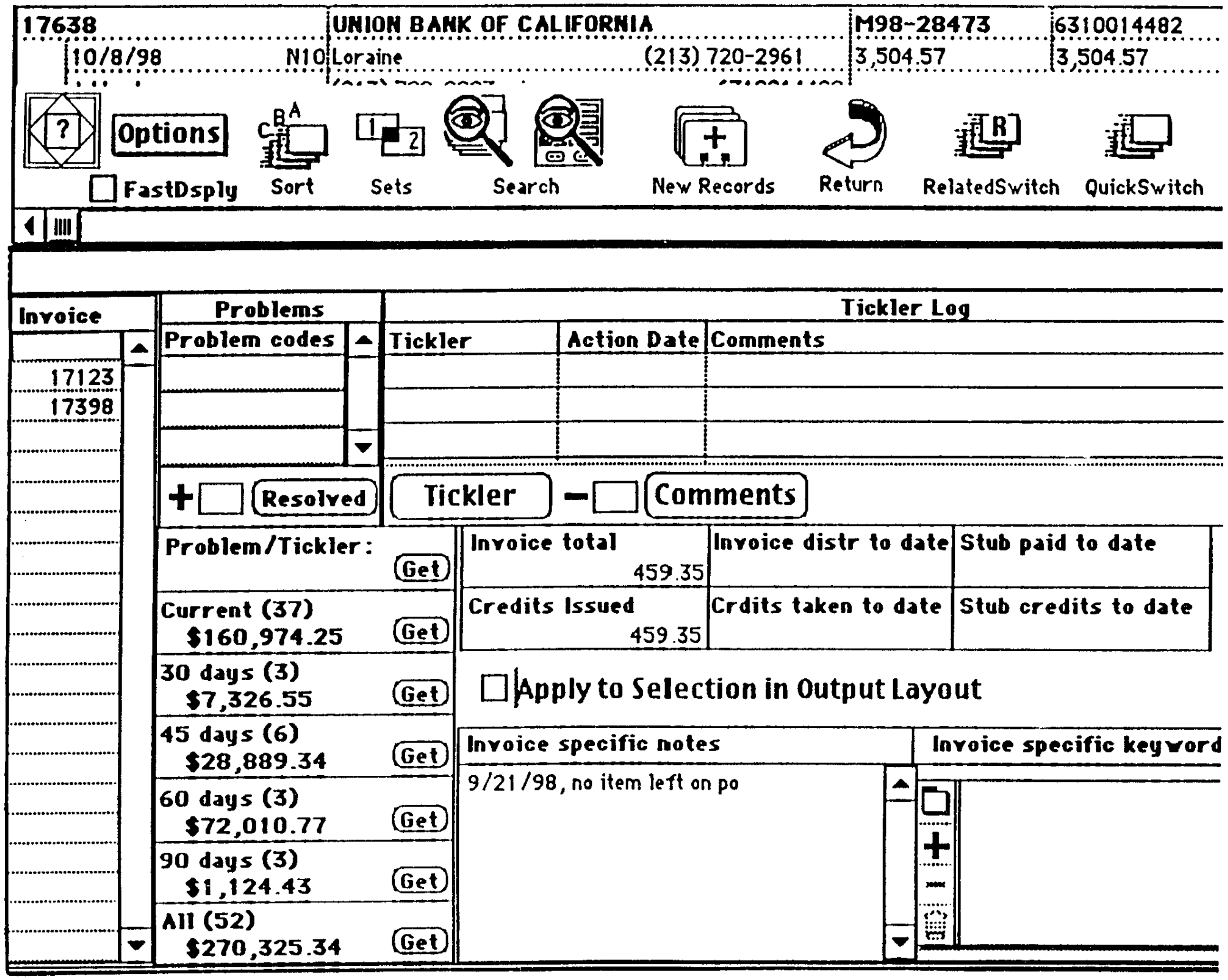
16977 (Sales-MI

Left to pay	Age	Frt-Tx-RMA	Credit summary
Open 145.05	Age: 140 90	8.34 10.71	
Open 459.35	Age: 141 90	26.43 33.92	
Open 520.03	Age: 105 90	39.90 36.59	

10/6/98, do not have invoice, need to fax it R-315879XSM / Temp27849-i 10/22/98, item is not on po

Left to pay	Age	Frt-Tx-RMA	Credit summary
Open 11,113.50	Age: 51 30	383.30 750.20	
Open 5,322.40	Age: 55 30	165.21 366.19	
Open 4,455.22	Age: 51 30	152.36 300.86	

FIG. 143 B



17638 UNION BANK OF CALIFORNIA M98-28473 6310014482
10/8/98 N10 Loraine (213) 720-2961 3,504.57 3,504.57

☐ FastDsply

Invoice
17123
17398

Problems
Problem codes

Tickler Log

Tickler	Action Date	Comments

Problem/Tickler:

Current (37) $160,974.25
30 days (3) $7,326.55
45 days (6) $28,889.34
60 days (3) $72,010.77
90 days (3) $1,124.43
All (52) $270,325.34

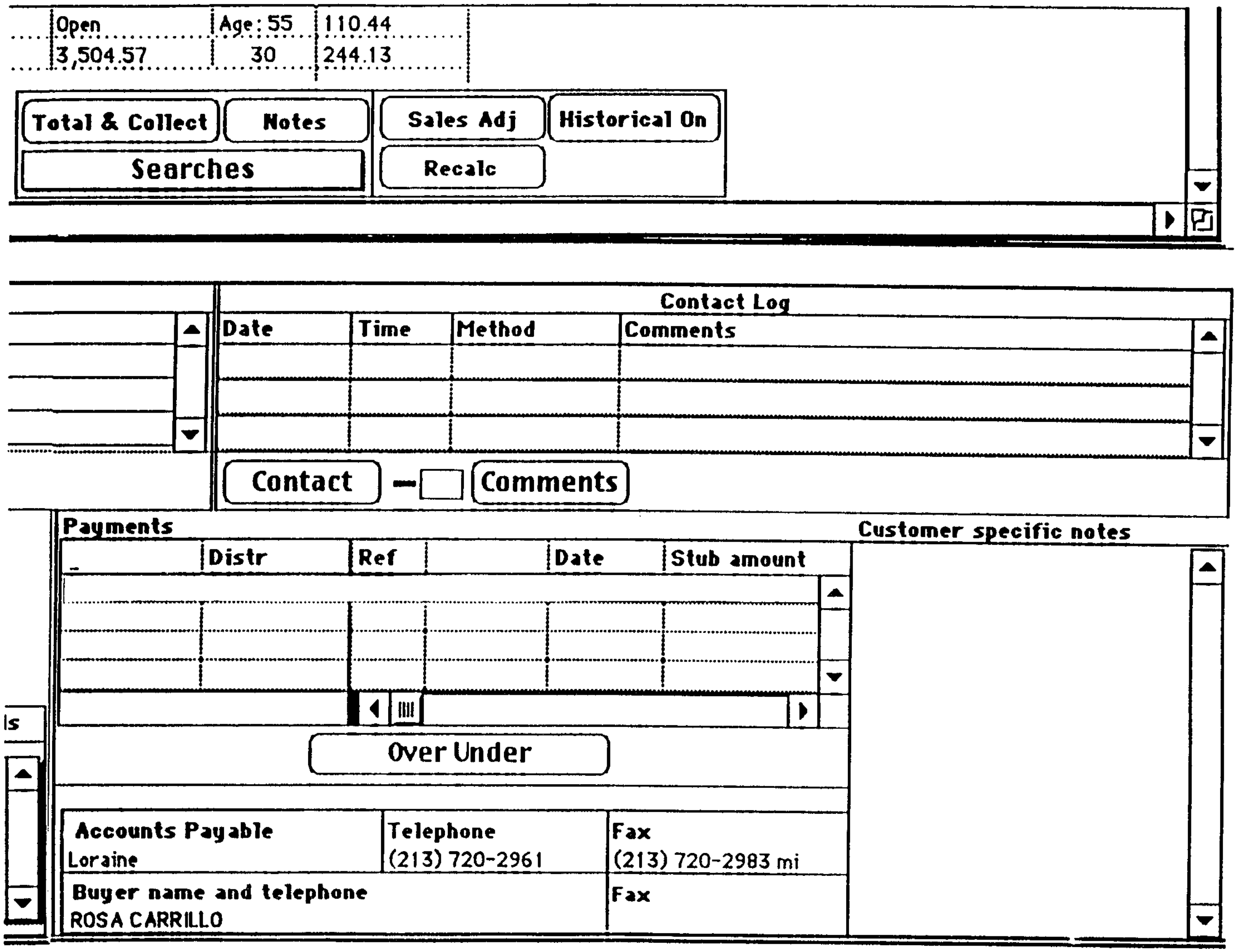
Invoice total 459.35	Invoice distr to date	Stub paid to date
Credits Issued 459.35	Crdits taken to date	Stub credits to date

☐ Apply to Selection in Output Layout

Invoice specific notes

9/21/98, no item left on po

FIG. 143 C



Open	Age: 55	110.44
3,504.57	30	244.13

Contact Log

Date	Time	Method	Comments

Payments

	Distr	Ref		Date	Stub amount

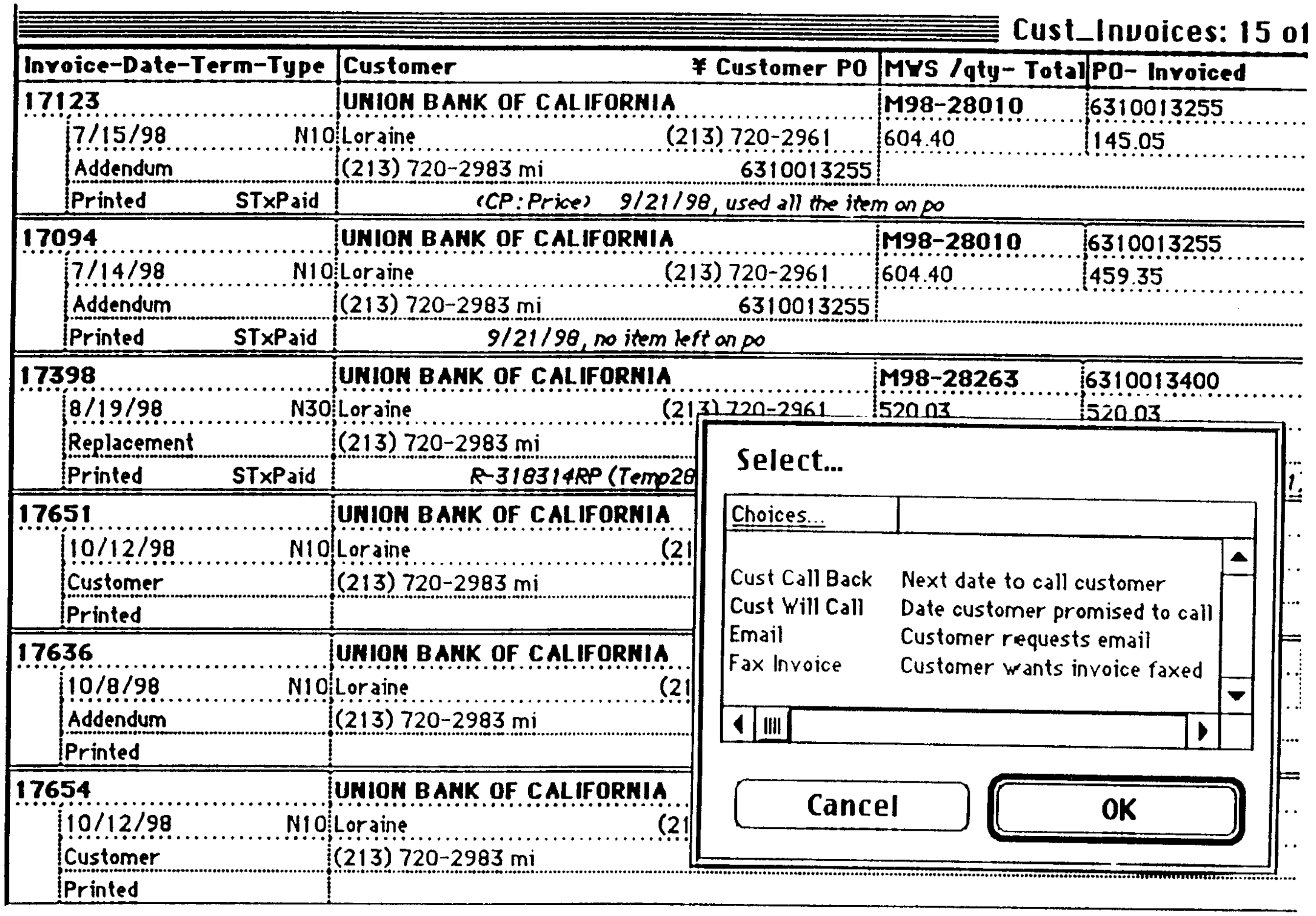
Customer specific notes

Accounts Payable Loraine	**Telephone** (213) 720-2961	**Fax** (213) 720-2983 mi
Buyer name and telephone ROSA CARRILLO		**Fax**

FIG. 143 D

FIG. 144

FIG. 144 A	FIG. 144 B
FIG. 144 C	FIG. 144 D



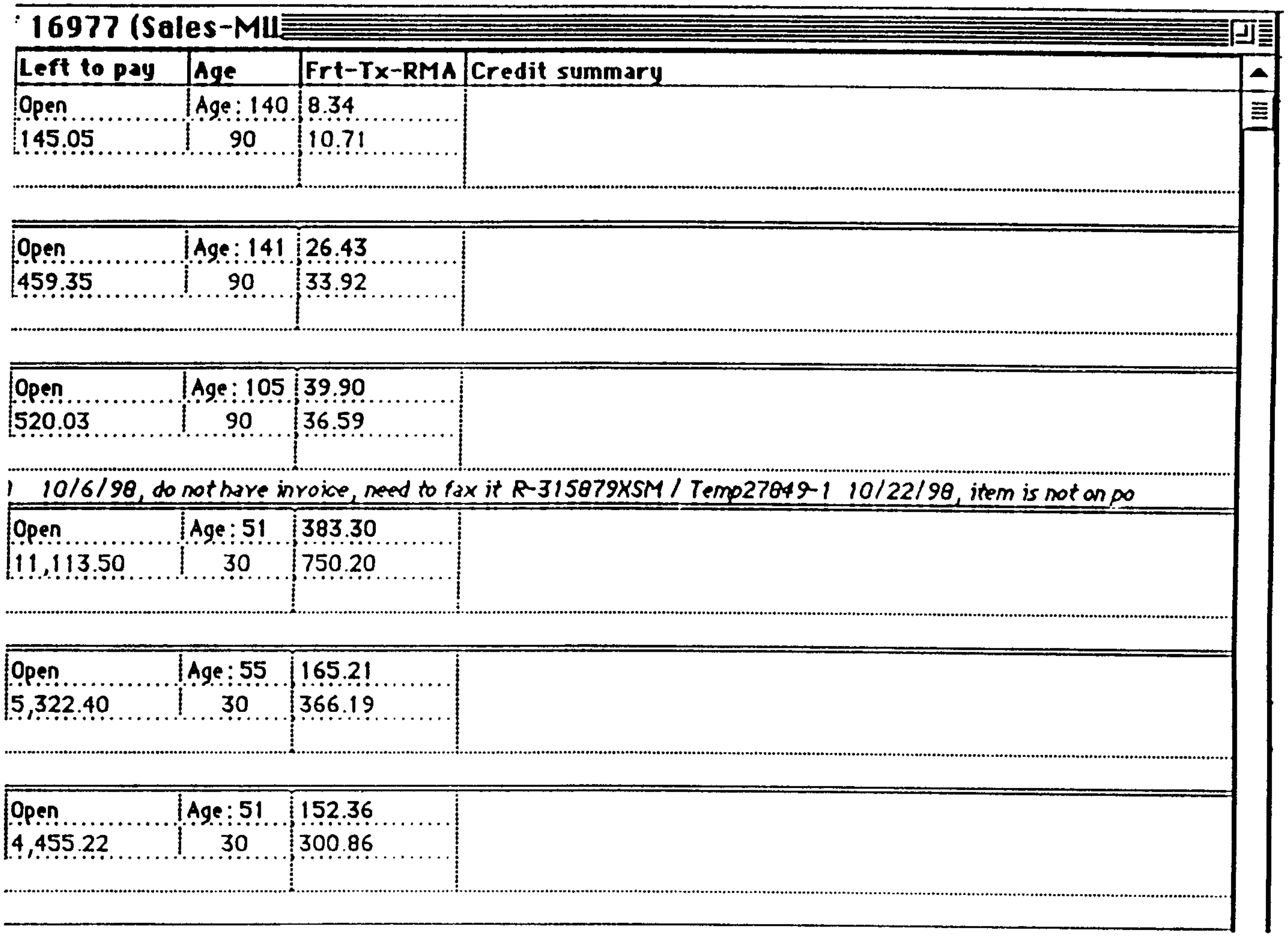
Cust_Invoices: 15 of

Invoice-Date-Term-Type		Customer	¥ Customer PO	MVS /qty- Total	PO- Invoiced
17123		UNION BANK OF CALIFORNIA		M98-28010	6310013255
7/15/98	N10	Loraine	(213) 720-2961	604.40	145.05
Addendum		(213) 720-2983 mi	6310013255		
Printed	STxPaid	(CP: Price) 9/21/98, used all the item on po			
17094		UNION BANK OF CALIFORNIA		M98-28010	6310013255
7/14/98	N10	Loraine	(213) 720-2961	604.40	459.35
Addendum		(213) 720-2983 mi	6310013255		
Printed	STxPaid	9/21/98, no item left on po			
17398		UNION BANK OF CALIFORNIA		M98-28263	6310013400
8/19/98	N30	Loraine	(213) 720-2961	520.03	520.03
Replacement		(213) 720-2983 mi			
Printed	STxPaid	R-318314RP (Temp28			
17651		UNION BANK OF CALIFORNIA			
10/12/98	N10	Loraine	(21		
Customer		(213) 720-2983 mi			
Printed					
17636		UNION BANK OF CALIFORNIA			
10/8/98	N10	Loraine	(21		
Addendum		(213) 720-2983 mi			
Printed					
17654		UNION BANK OF CALIFORNIA			
10/12/98	N10	Loraine	(21		
Customer		(213) 720-2983 mi			
Printed					

Select...

Choices...	
Cust Call Back	Next date to call customer
Cust Will Call	Date customer promised to call
Email	Customer requests email
Fax Invoice	Customer wants invoice faxed

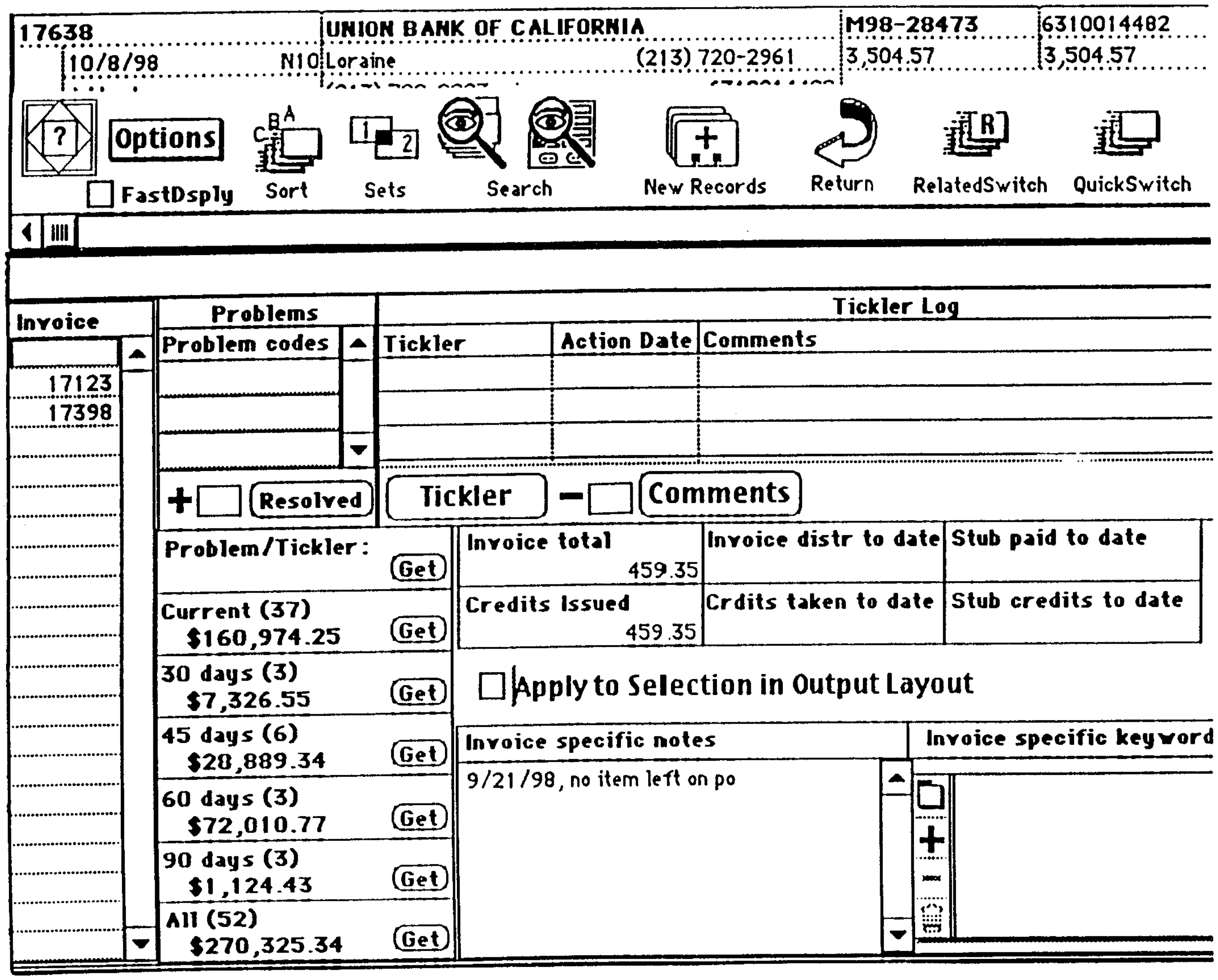
FIG. 144 A



16977 (Sales-MII

Left to pay	Age	Frt-Tx-RMA	Credit summary
Open	Age: 140	8.34	
145.05	90	10.71	
Open	Age: 141	26.43	
459.35	90	33.92	
Open	Age: 105	39.90	
520.03	90	36.59	
10/6/98, do not have invoice, need to fax it R-315879XSM / Temp27849-1 10/22/98, item is not on po			
Open	Age: 51	383.30	
11,113.50	30	750.20	
Open	Age: 55	165.21	
5,322.40	30	366.19	
Open	Age: 51	152.36	
4,455.22	30	300.86	

FIG. 144 B



17638 | UNION BANK OF CALIFORNIA | M98-28473 | 6310014482
10/8/98 N10 | Loraine (213) 720-2961 | 3,504.57 | 3,504.57

Invoice
17123
17398

Problems
Problem codes

Tickler Log		
Tickler	Action Date	Comments

Problem/Tickler:

Current (37)	$160,974.25
30 days (3)	$7,326.55
45 days (6)	$28,889.34
60 days (3)	$72,010.77
90 days (3)	$1,124.43
All (52)	$270,325.34

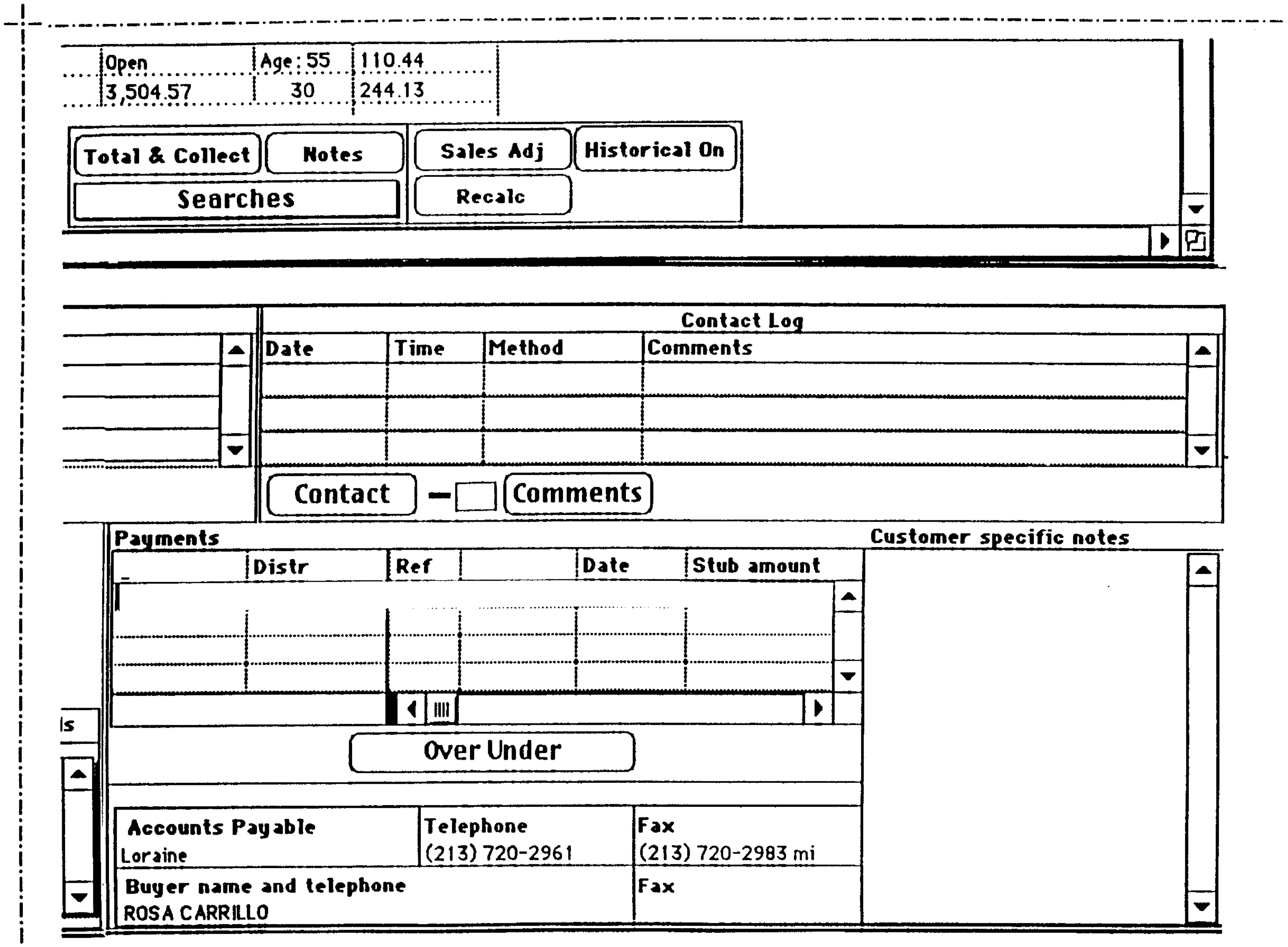
Invoice total 459.35	Invoice distr to date	Stub paid to date
Credits Issued 459.35	Crdits taken to date	Stub credits to date

☐ Apply to Selection in Output Layout

Invoice specific notes
9/21/98, no item left on po

Invoice specific keyword

FIG. 144 C



Open	Age : 55	110.44
3,504.57	30	244.13

Contact Log

Date	Time	Method	Comments

Payments

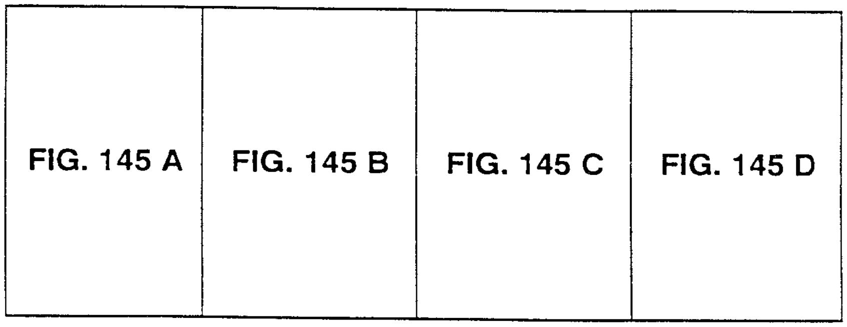
	Distr	Ref		Date	Stub amount

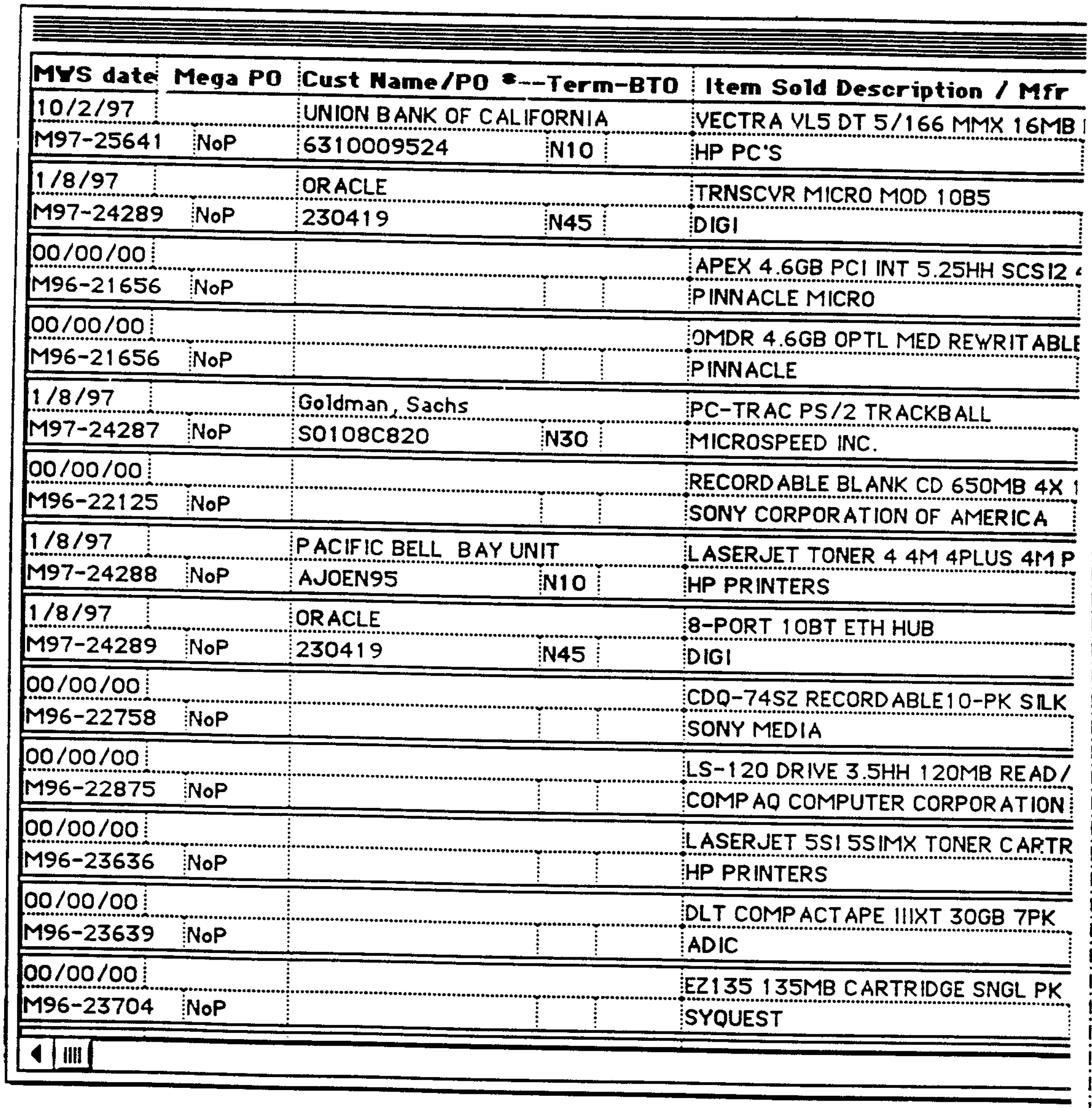
Customer specific notes

Accounts Payable Loraine	**Telephone** (213) 720-2961	**Fax** (213) 720-2983 mi
Buyer name and telephone ROSA CARRILLO		**Fax**

FIG. 144 D

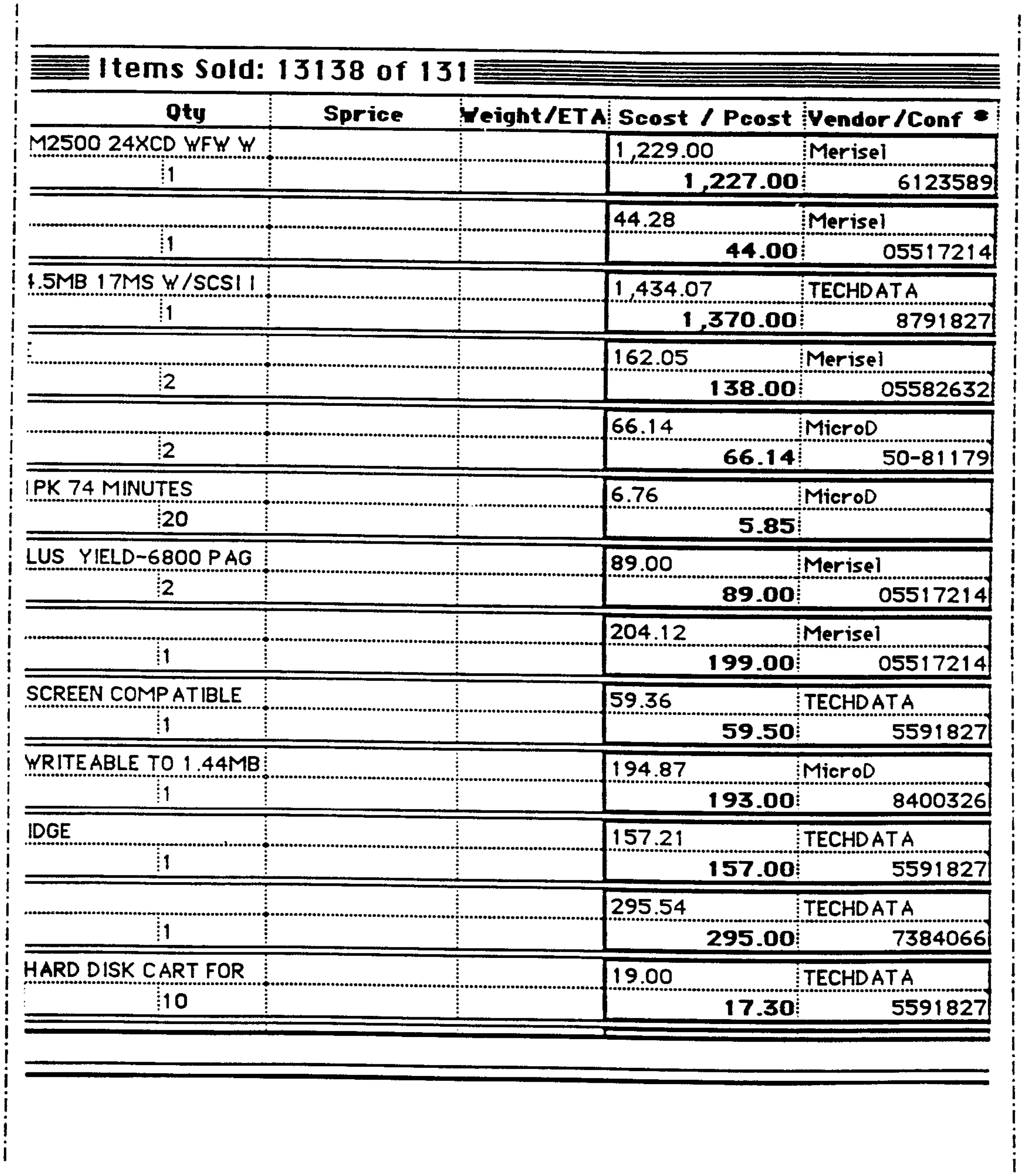
FIG. 145





MVS date	Mega PO	Cust Name/PO *--Term-BTO			Item Sold Description / Mfr
10/2/97		UNION BANK OF CALIFORNIA			VECTRA VL5 DT 5/166 MMX 16MB
M97-25641	NoP	6310009524	N10		HP PC'S
1/8/97		ORACLE			TRNSCVR MICRO MOD 10B5
M97-24289	NoP	230419	N45		DIGI
00/00/00					APEX 4.6GB PCI INT 5.25HH SCSI2
M96-21656	NoP				PINNACLE MICRO
00/00/00					OMDR 4.6GB OPTL MED REWRITABL
M96-21656	NoP				PINNACLE
1/8/97		Goldman, Sachs			PC-TRAC PS/2 TRACKBALL
M97-24287	NoP	S0108C820	N30		MICROSPEED INC.
00/00/00					RECORDABLE BLANK CD 650MB 4X
M96-22125	NoP				SONY CORPORATION OF AMERICA
1/8/97		PACIFIC BELL BAY UNIT			LASERJET TONER 4 4M 4PLUS 4M P
M97-24288	NoP	AJOEN95	N10		HP PRINTERS
1/8/97		ORACLE			8-PORT 10BT ETH HUB
M97-24289	NoP	230419	N45		DIGI
00/00/00					CDQ-74SZ RECORDABLE10-PK SILK
M96-22758	NoP				SONY MEDIA
00/00/00					LS-120 DRIVE 3.5HH 120MB READ/
M96-22875	NoP				COMPAQ COMPUTER CORPORATION
00/00/00					LASERJET 5SI 5SIMX TONER CARTR
M96-23636	NoP				HP PRINTERS
00/00/00					DLT COMPACTAPE IIIXT 30GB 7PK
M96-23639	NoP				ADIC
00/00/00					EZ135 135MB CARTRIDGE SNGL PK
M96-23704	NoP				SYQUEST

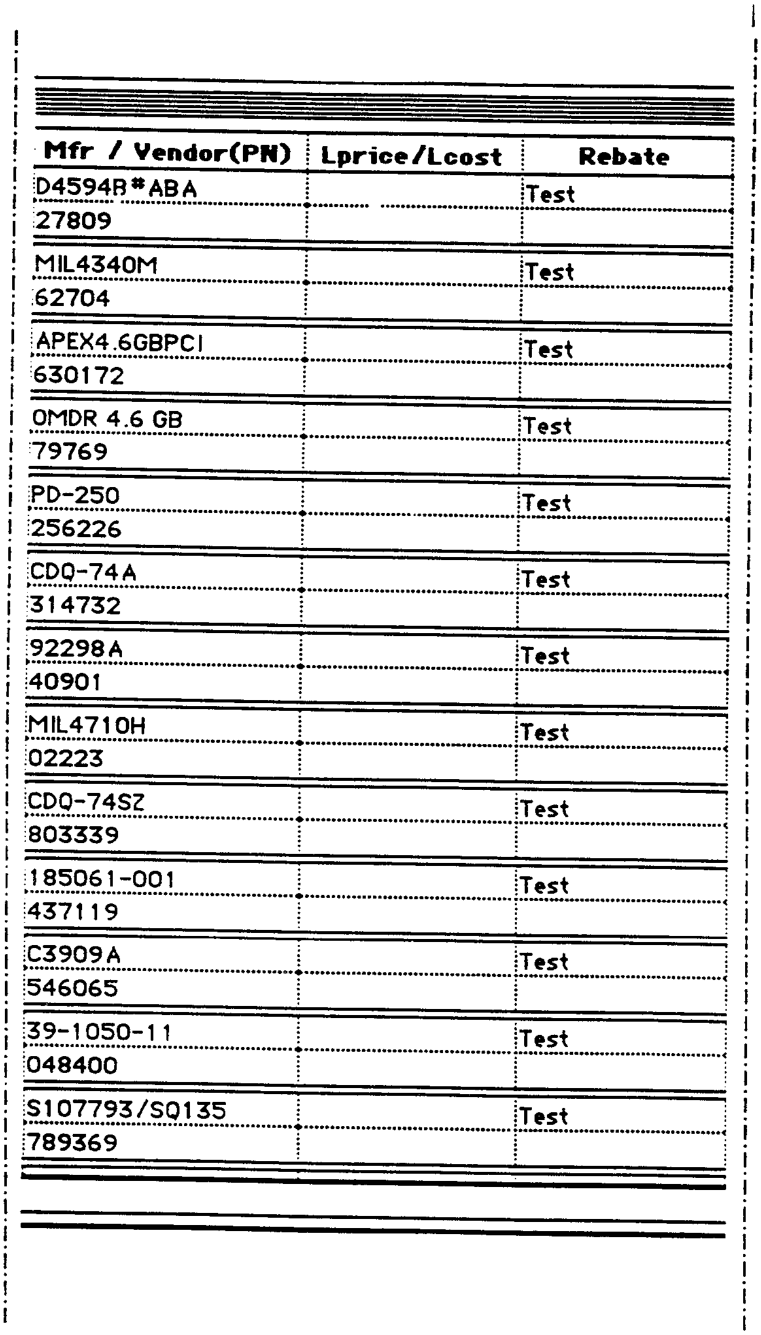
FIG. 145 A



Items Sold: 13138 of 131

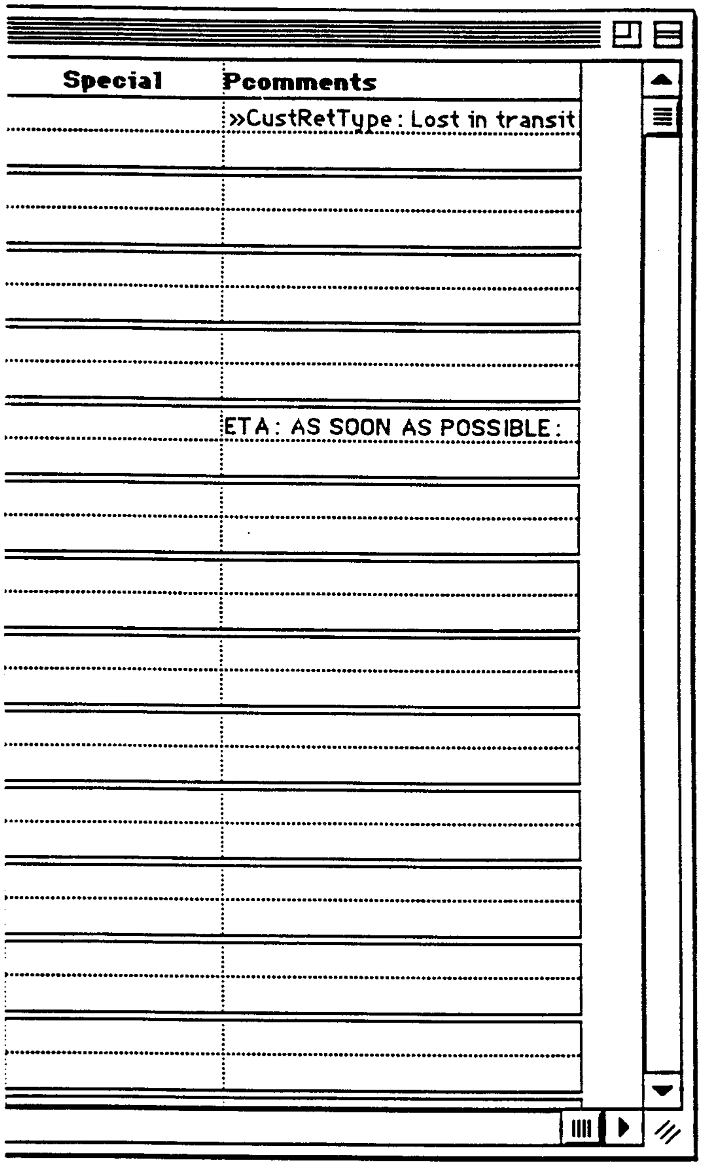
Qty	Sprice	Weight/ETA	Scost / Pcost	Vendor/Conf *
M2500 24XCD WFW W			1,229.00	Merisel
1			**1,227.00**	6123589
			44.28	Merisel
1			**44.00**	05517214
.5MB 17MS W/SCSI I			1,434.07	TECHDATA
1			**1,370.00**	8791827
			162.05	Merisel
2			**138.00**	05582632
			66.14	MicroD
2			**66.14**	50-81179
IPK 74 MINUTES			6.76	MicroD
20			**5.85**	
LUS YIELD-6800 PAG			89.00	Merisel
2			**89.00**	05517214
			204.12	Merisel
1			**199.00**	05517214
SCREEN COMPATIBLE			59.36	TECHDATA
1			**59.50**	5591827
WRITEABLE TO 1.44MB			194.87	MicroD
1			**193.00**	8400326
IDGE			157.21	TECHDATA
1			**157.00**	5591827
			295.54	TECHDATA
1			**295.00**	7384066
HARD DISK CART FOR			19.00	TECHDATA
10			**17.30**	5591827

FIG. 145 B



Mfr / Vendor(PN)	Lprice/Lcost	Rebate
D4594B#ABA		Test
27809		
MIL4340M		Test
62704		
APEX4.6GBPCI		Test
630172		
OMDR 4.6 GB		Test
79769		
PD-250		Test
256226		
CDQ-74A		Test
314732		
92298A		Test
40901		
MIL4710H		Test
02223		
CDQ-74SZ		Test
803339		
185061-001		Test
437119		
C3909A		Test
546065		
39-1050-11		Test
048400		
S107793/SQ135		Test
789369		

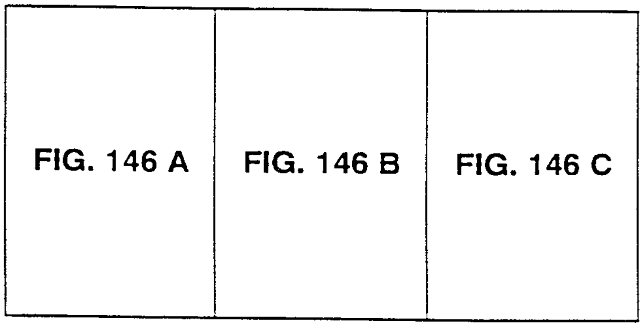
FIG. 145 C

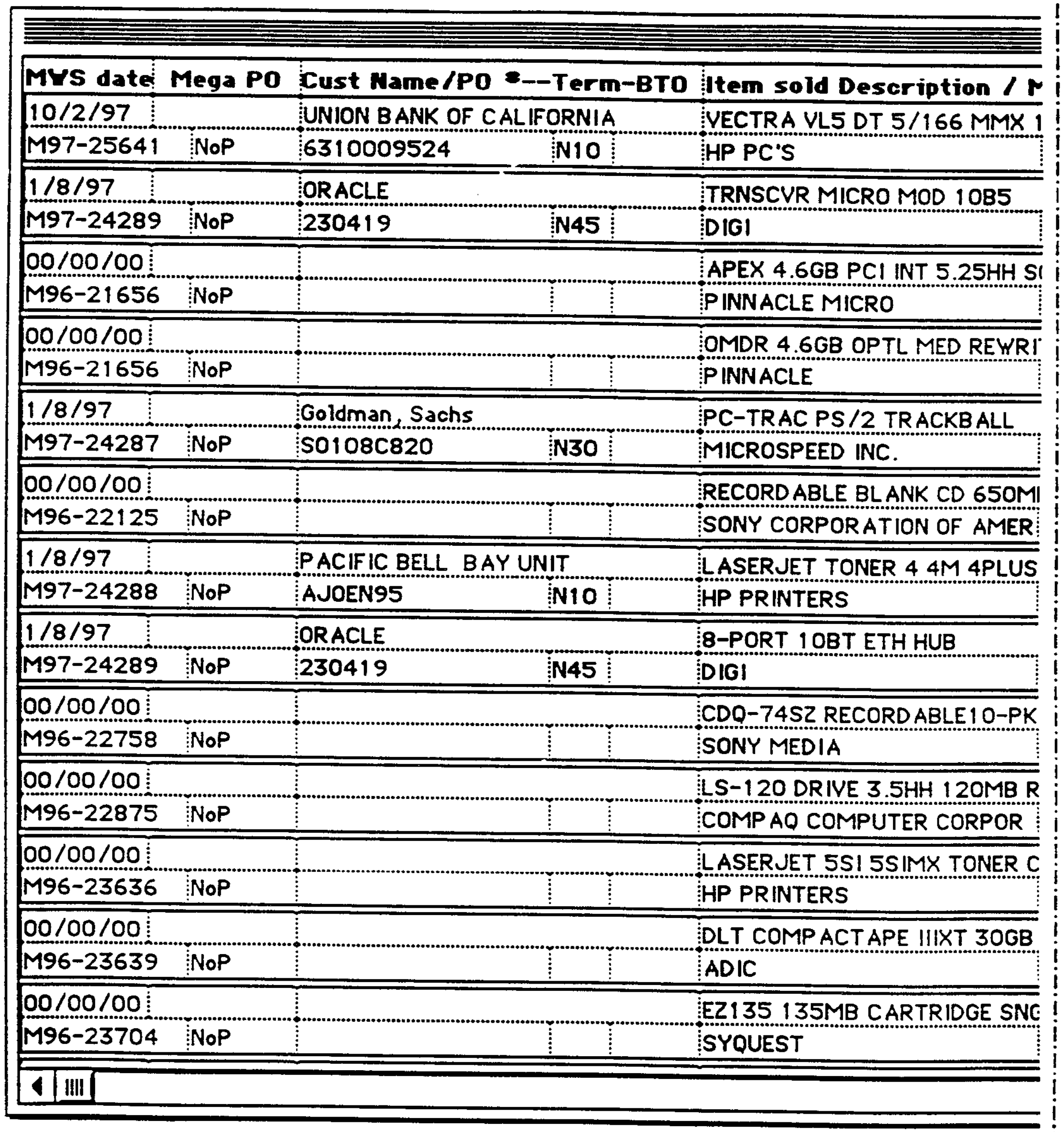


Special	Pcomments
	»CustRetType : Lost in transit
	ETA : AS SOON AS POSSIBLE :

FIG. 145 D

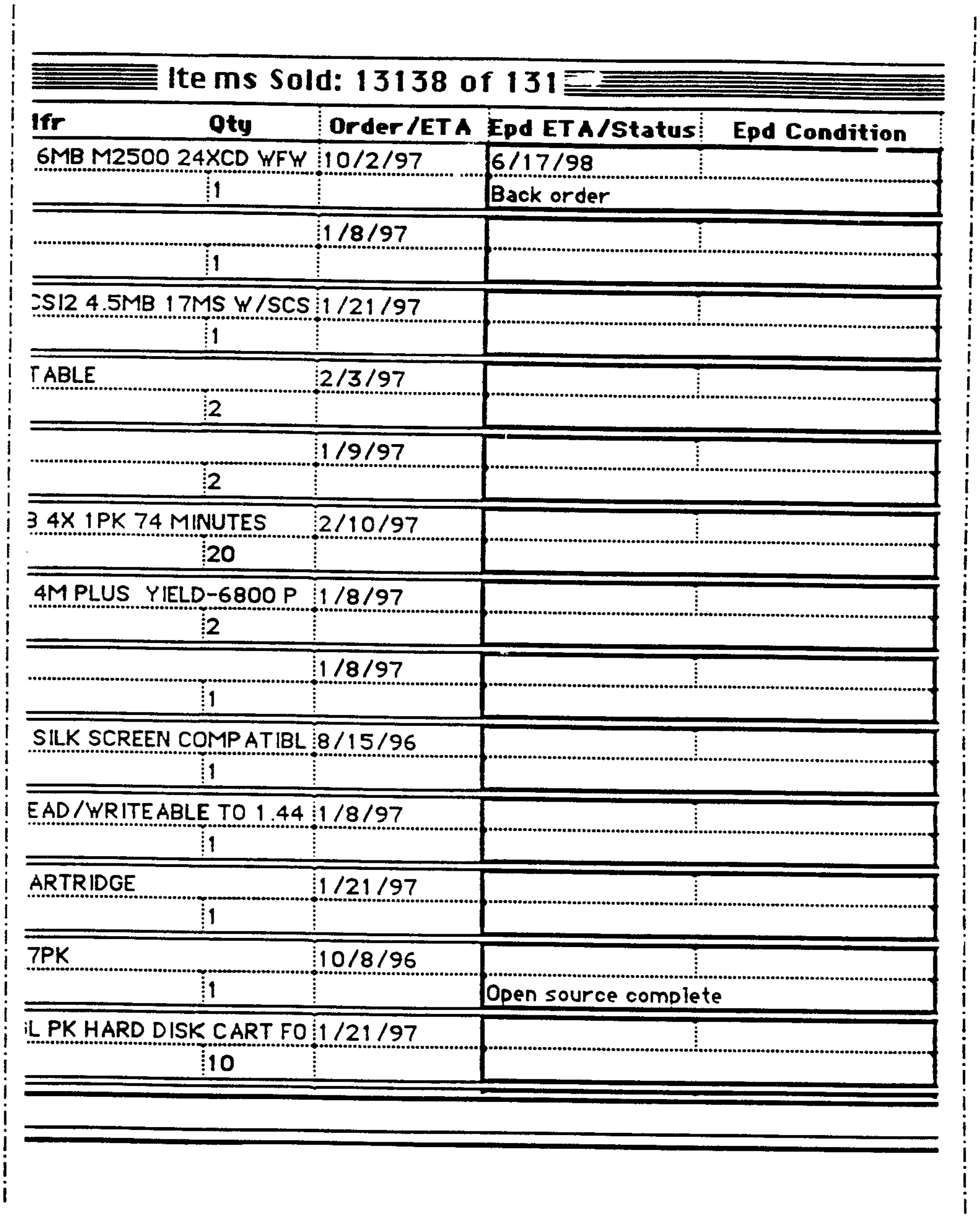
FIG. 146





MYS date	Mega PO	Cust Name/PO *--Term-BTO			Item sold Description /
10/2/97		UNION BANK OF CALIFORNIA			VECTRA VL5 DT 5/166 MMX 1
M97-25641	NoP	6310009524	N10		HP PC'S
1/8/97		ORACLE			TRNSCVR MICRO MOD 10B5
M97-24289	NoP	230419	N45		DIGI
00/00/00					APEX 4.6GB PCI INT 5.25HH S
M96-21656	NoP				PINNACLE MICRO
00/00/00					OMDR 4.6GB OPTL MED REWRI
M96-21656	NoP				PINNACLE
1/8/97		Goldman, Sachs			PC-TRAC PS/2 TRACKBALL
M97-24287	NoP	S0108C820	N30		MICROSPEED INC.
00/00/00					RECORDABLE BLANK CD 650MI
M96-22125	NoP				SONY CORPORATION OF AMER
1/8/97		PACIFIC BELL BAY UNIT			LASERJET TONER 4 4M 4PLUS
M97-24288	NoP	AJOEN95	N10		HP PRINTERS
1/8/97		ORACLE			8-PORT 10BT ETH HUB
M97-24289	NoP	230419	N45		DIGI
00/00/00					CDQ-74SZ RECORDABLE10-PK
M96-22758	NoP				SONY MEDIA
00/00/00					LS-120 DRIVE 3.5HH 120MB R
M96-22875	NoP				COMPAQ COMPUTER CORPOR
00/00/00					LASERJET 5SI 5SIMX TONER C
M96-23636	NoP				HP PRINTERS
00/00/00					DLT COMPACTAPE IIIXT 30GB
M96-23639	NoP				ADIC
00/00/00					EZ135 135MB CARTRIDGE SN
M96-23704	NoP				SYQUEST

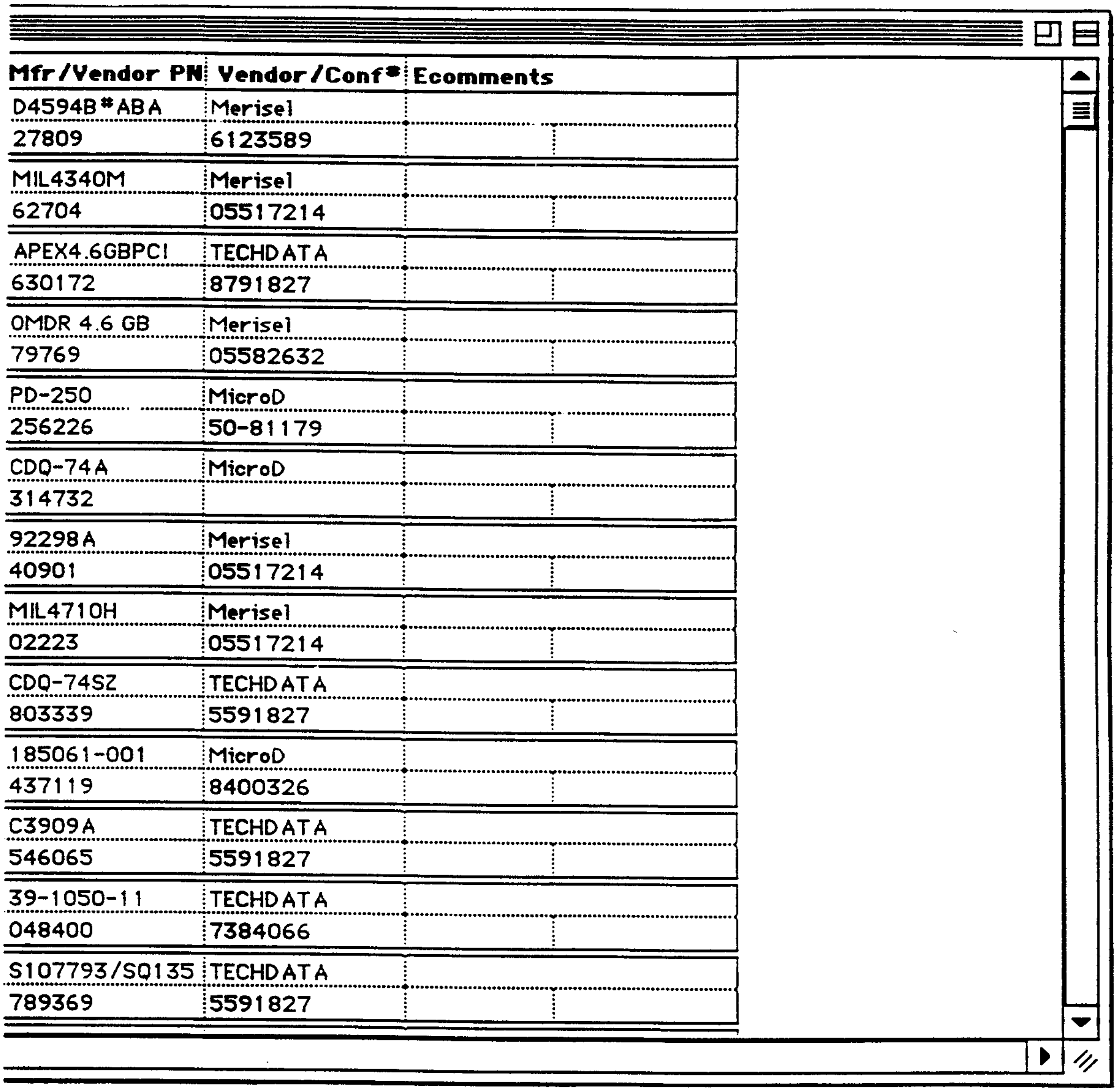
FIG. 146 A



Items Sold: 13138 of 131

lfr	Qty	Order/ETA	Epd ETA/Status	Epd Condition
6MB M2500 24XCD WFW	1	10/2/97	6/17/98 Back order	
	1	1/8/97		
SI2 4.5MB 17MS W/SCS	1	1/21/97		
TABLE	2	2/3/97		
	2	1/9/97		
3 4X 1PK 74 MINUTES	20	2/10/97		
4M PLUS YIELD-6800 P	2	1/8/97		
	1	1/8/97		
SILK SCREEN COMPATIBL	1	8/15/96		
EAD/WRITEABLE TO 1.44	1	1/8/97		
ARTRIDGE	1	1/21/97		
7PK	1	10/8/96	Open source complete	
L PK HARD DISK CART FO	10	1/21/97		

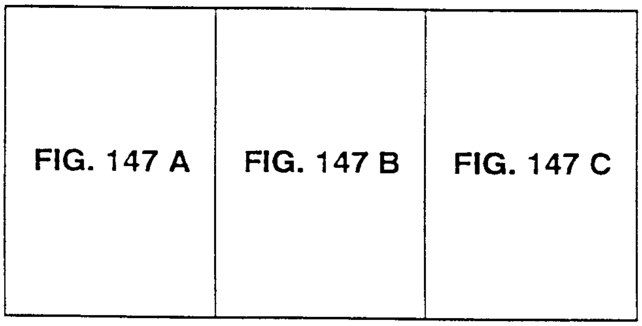
FIG. 146 B

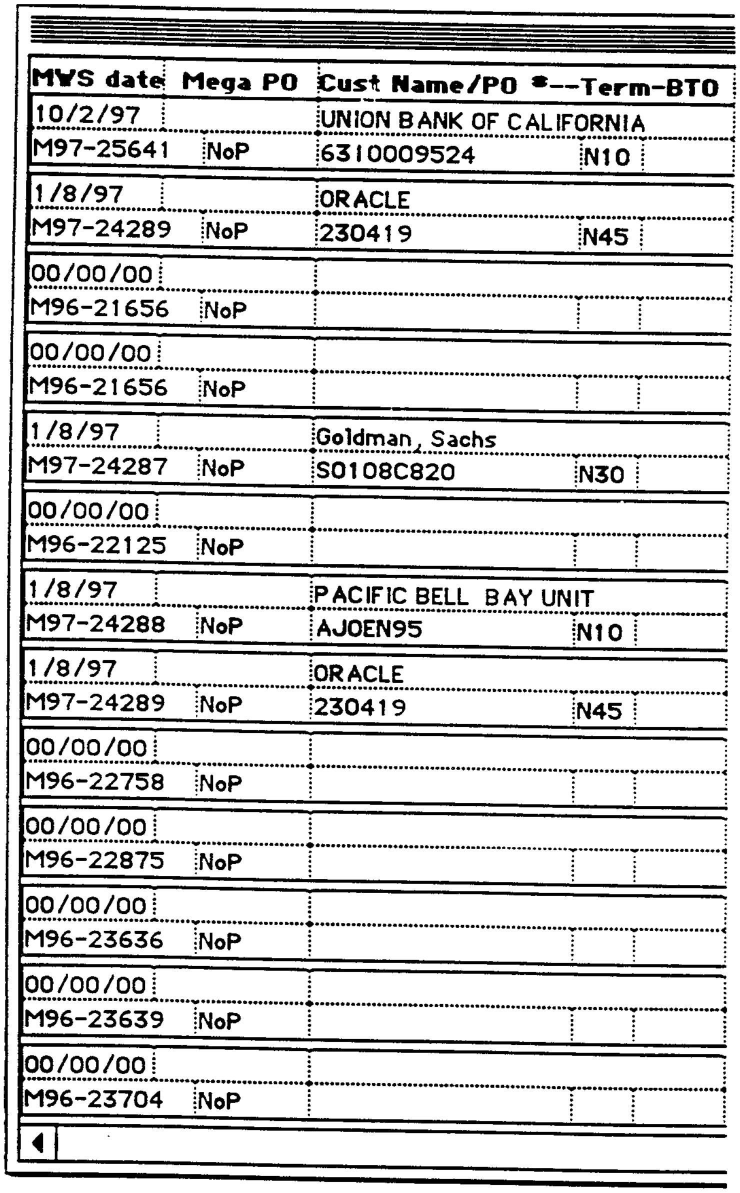


Mfr/Vendor PN	Vendor/Conf*	Ecomments
D4594B*ABA	Merisel	
27809	6123589	
MIL4340M	Merisel	
62704	05517214	
APEX4.6GBPCI	TECHDATA	
630172	8791827	
OMDR 4.6 GB	Merisel	
79769	05582632	
PD-250	MicroD	
256226	50-81179	
CDQ-74A	MicroD	
314732		
92298A	Merisel	
40901	05517214	
MIL4710H	Merisel	
02223	05517214	
CDQ-74SZ	TECHDATA	
803339	5591827	
185061-001	MicroD	
437119	8400326	
C3909A	TECHDATA	
546065	5591827	
39-1050-11	TECHDATA	
048400	7384066	
S107793/SQ135	TECHDATA	
789369	5591827	

FIG. 146 C

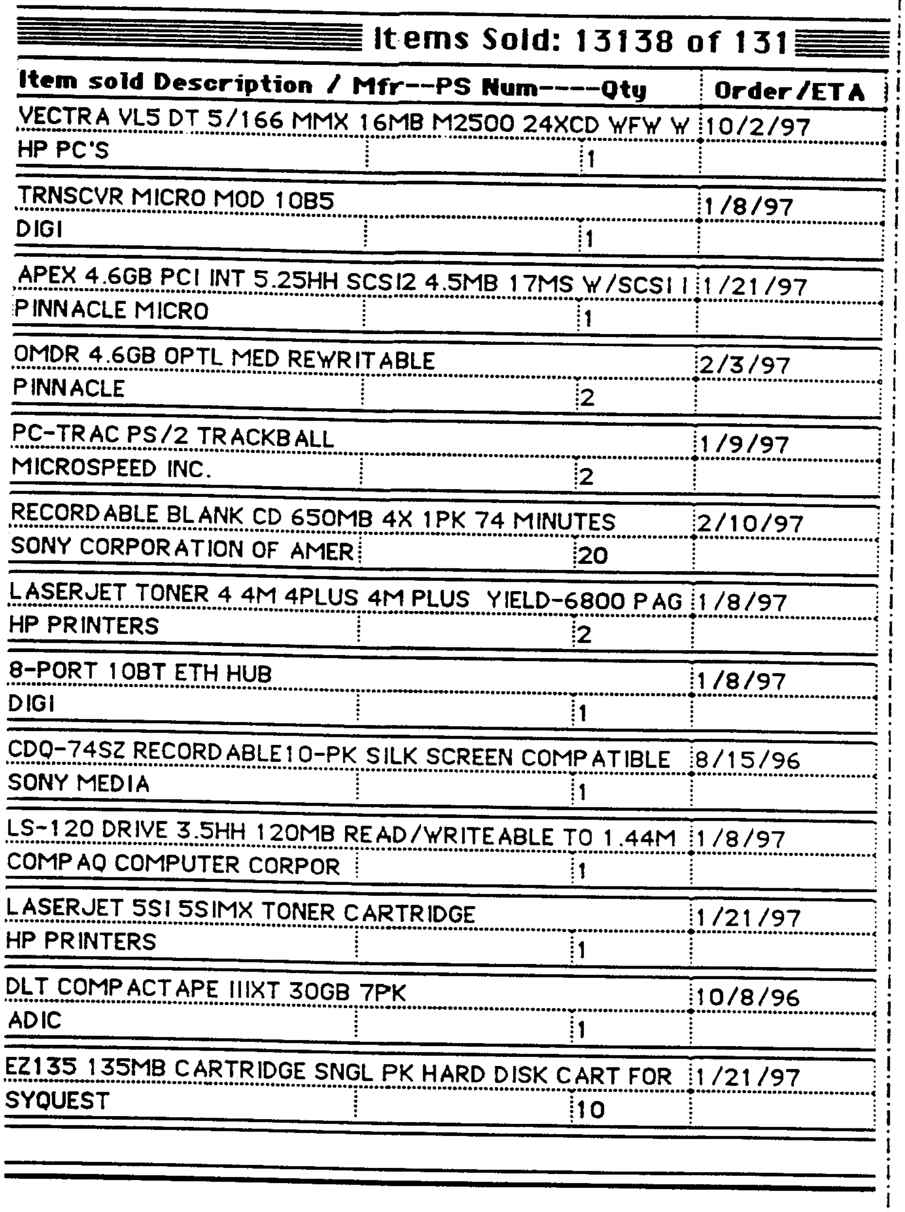
FIG. 147





MVS date	Mega PO	Cust Name/PO #	--Term	-BTO
10/2/97		UNION BANK OF CALIFORNIA		
M97-25641	NoP	6310009524	N10	
1/8/97		ORACLE		
M97-24289	NoP	230419	N45	
00/00/00				
M96-21656	NoP			
00/00/00				
M96-21656	NoP			
1/8/97		Goldman, Sachs		
M97-24287	NoP	S0108C820	N30	
00/00/00				
M96-22125	NoP			
1/8/97		PACIFIC BELL BAY UNIT		
M97-24288	NoP	AJOEN95	N10	
1/8/97		ORACLE		
M97-24289	NoP	230419	N45	
00/00/00				
M96-22758	NoP			
00/00/00				
M96-22875	NoP			
00/00/00				
M96-23636	NoP			
00/00/00				
M96-23639	NoP			
00/00/00				
M96-23704	NoP			

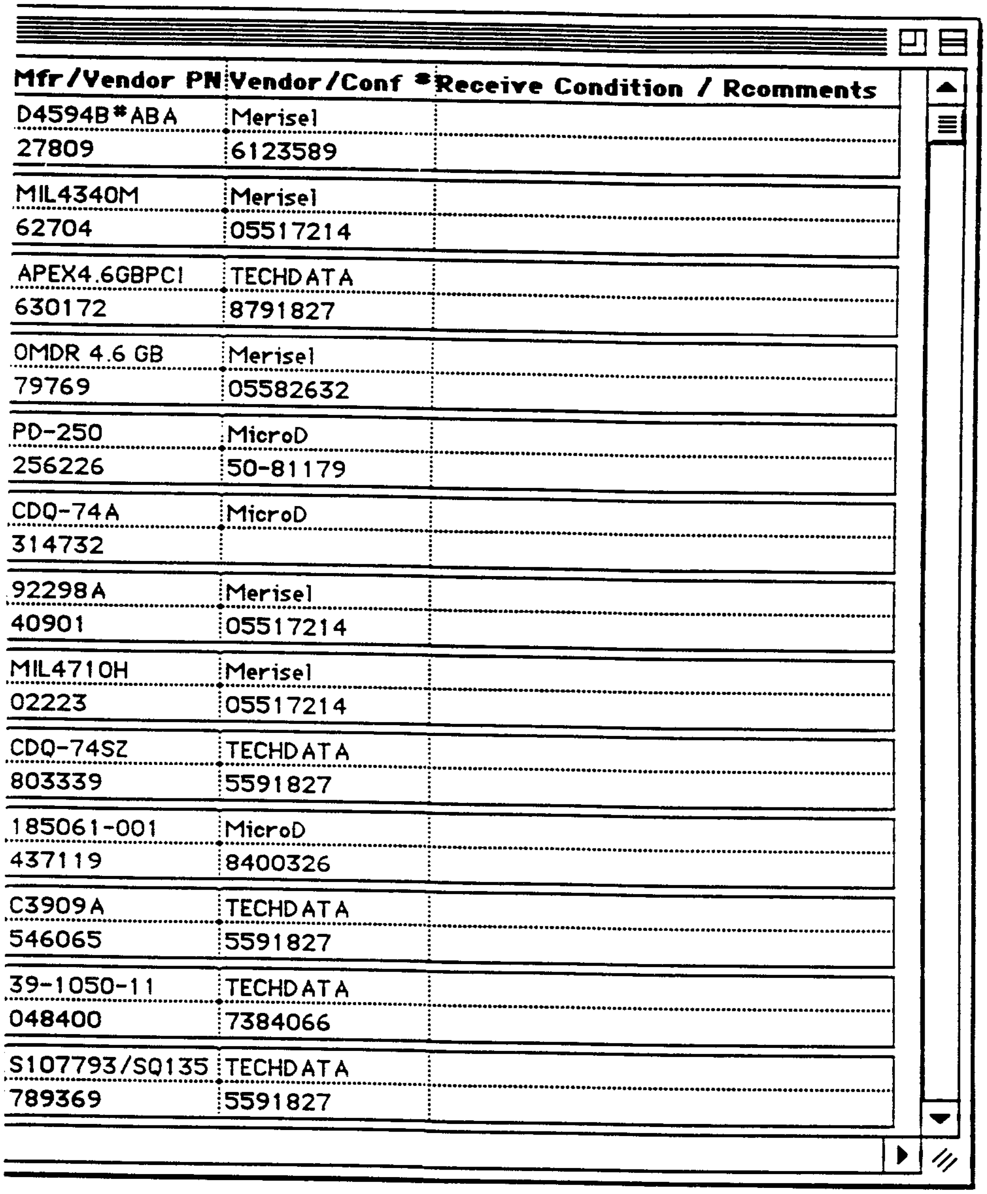
FIG. 147 A



Items Sold: 13138 of 131

Item sold Description / Mfr--PS Num----Qty			Order/ETA
VECTRA VL5 DT 5/166 MMX 16MB M2500 24XCD WFW W			10/2/97
HP PC'S		1	
TRNSCVR MICRO MOD 10B5			1/8/97
DIGI		1	
APEX 4.6GB PCI INT 5.25HH SCSI2 4.5MB 17MS W/SCSI I			1/21/97
PINNACLE MICRO		1	
OMDR 4.6GB OPTL MED REWRITABLE			2/3/97
PINNACLE		2	
PC-TRAC PS/2 TRACKBALL			1/9/97
MICROSPEED INC.		2	
RECORDABLE BLANK CD 650MB 4X 1PK 74 MINUTES			2/10/97
SONY CORPORATION OF AMER		20	
LASERJET TONER 4 4M 4PLUS 4M PLUS YIELD-6800 PAG			1/8/97
HP PRINTERS		2	
8-PORT 10BT ETH HUB			1/8/97
DIGI		1	
CDQ-74SZ RECORDABLE10-PK SILK SCREEN COMPATIBLE			8/15/96
SONY MEDIA		1	
LS-120 DRIVE 3.5HH 120MB READ/WRITEABLE TO 1.44M			1/8/97
COMPAQ COMPUTER CORPOR		1	
LASERJET 5SI 5SIMX TONER CARTRIDGE			1/21/97
HP PRINTERS		1	
DLT COMPACTAPE IIIXT 30GB 7PK			10/8/96
ADIC		1	
EZ135 135MB CARTRIDGE SNGL PK HARD DISK CART FOR			1/21/97
SYQUEST		10	

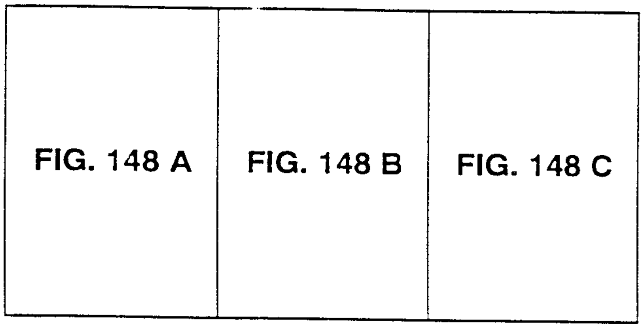
FIG. 147 B

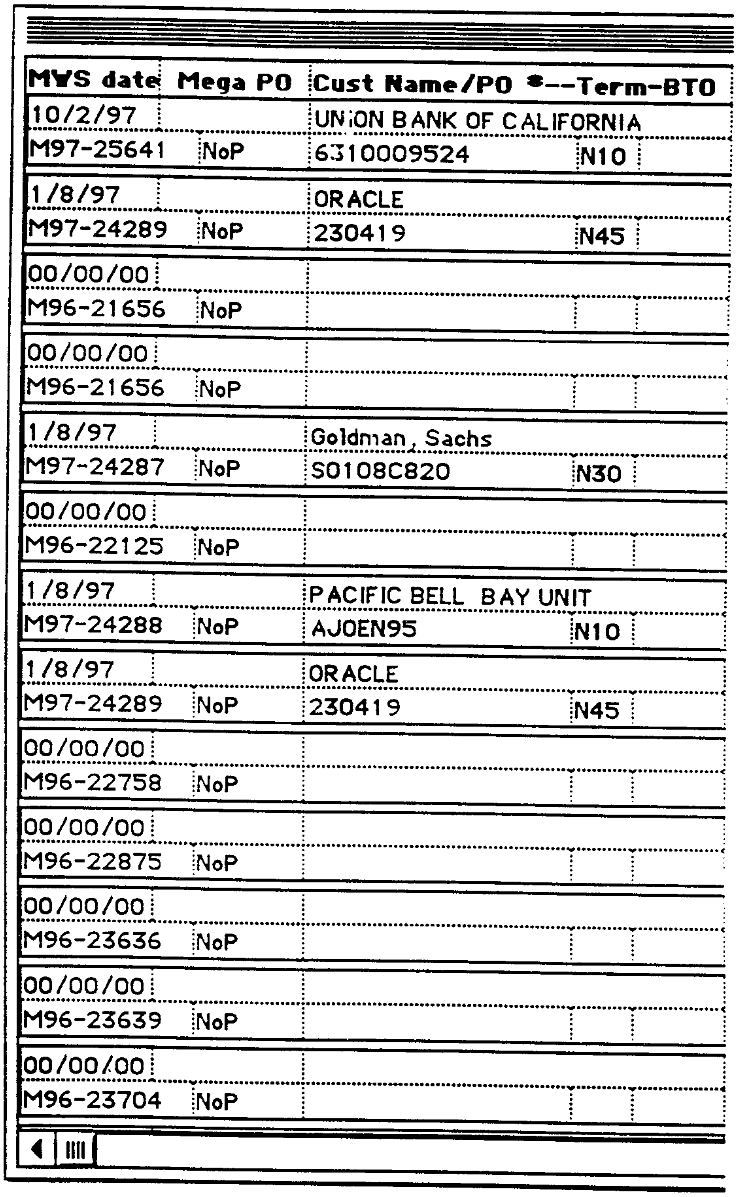


Mfr/Vendor PN	Vendor/Conf #	Receive Condition / Rcomments
D4594B*ABA	Merisel	
27809	6123589	
MIL4340M	Merisel	
62704	05517214	
APEX4.6GBPCI	TECHDATA	
630172	8791827	
OMDR 4.6 GB	Merisel	
79769	05582632	
PD-250	MicroD	
256226	50-81179	
CDQ-74A	MicroD	
314732		
92298A	Merisel	
40901	05517214	
MIL4710H	Merisel	
02223	05517214	
CDQ-74SZ	TECHDATA	
803339	5591827	
185061-001	MicroD	
437119	8400326	
C3909A	TECHDATA	
546065	5591827	
39-1050-11	TECHDATA	
048400	7384066	
S107793/SQ135	TECHDATA	
789369	5591827	

FIG. 147 C

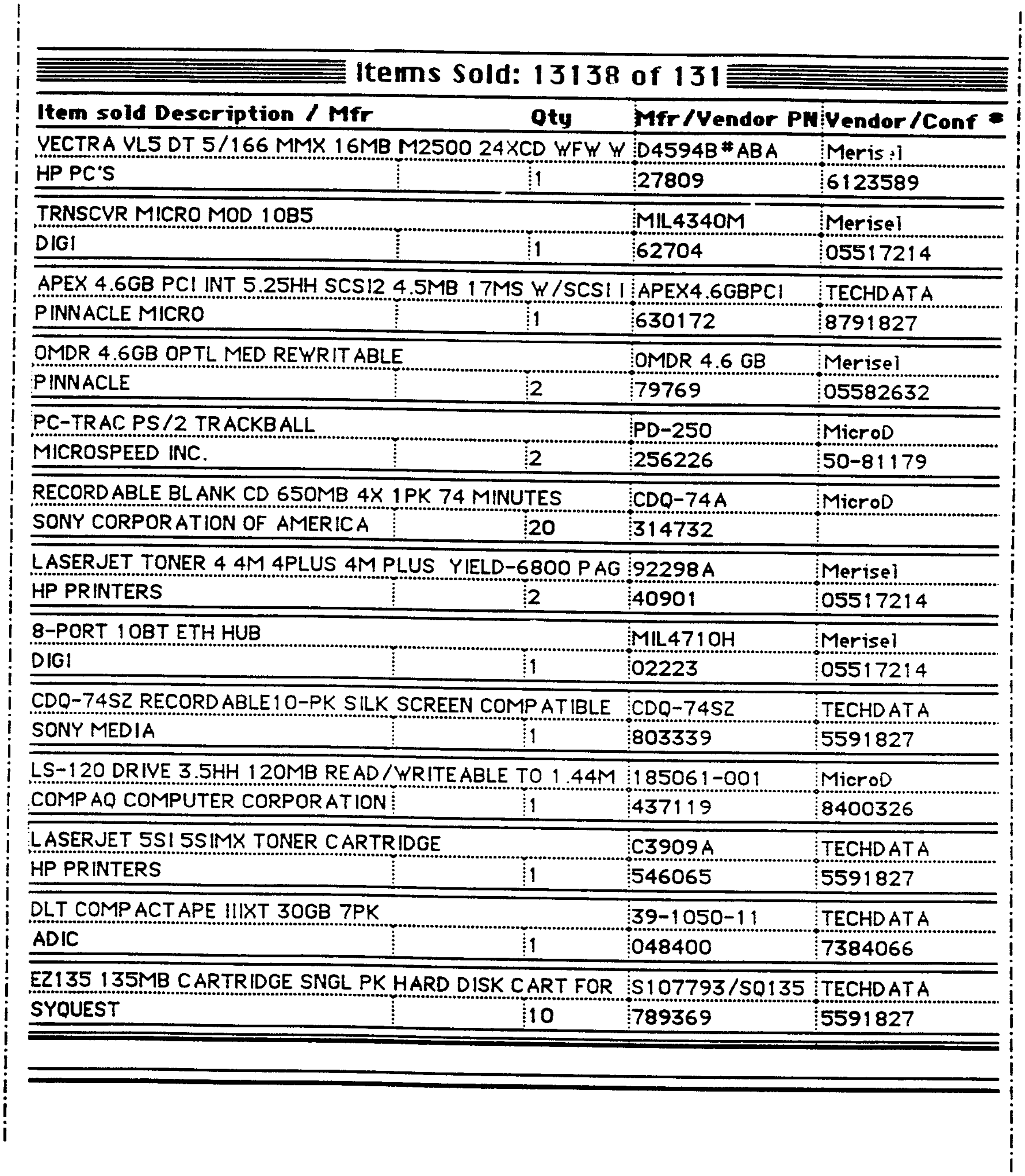
FIG. 148





MVS date	Mega PO	Cust Name/PO #--Term-BTO		
10/2/97		UNION BANK OF CALIFORNIA		
M97-25641	NoP	6310009524	N10	
1/8/97		ORACLE		
M97-24289	NoP	230419	N45	
00/00/00				
M96-21656	NoP			
00/00/00				
M96-21656	NoP			
1/8/97		Goldman, Sachs		
M97-24287	NoP	S0108C820	N30	
00/00/00				
M96-22125	NoP			
1/8/97		PACIFIC BELL BAY UNIT		
M97-24288	NoP	AJOEN95	N10	
1/8/97		ORACLE		
M97-24289	NoP	230419	N45	
00/00/00				
M96-22758	NoP			
00/00/00				
M96-22875	NoP			
00/00/00				
M96-23636	NoP			
00/00/00				
M96-23639	NoP			
00/00/00				
M96-23704	NoP			

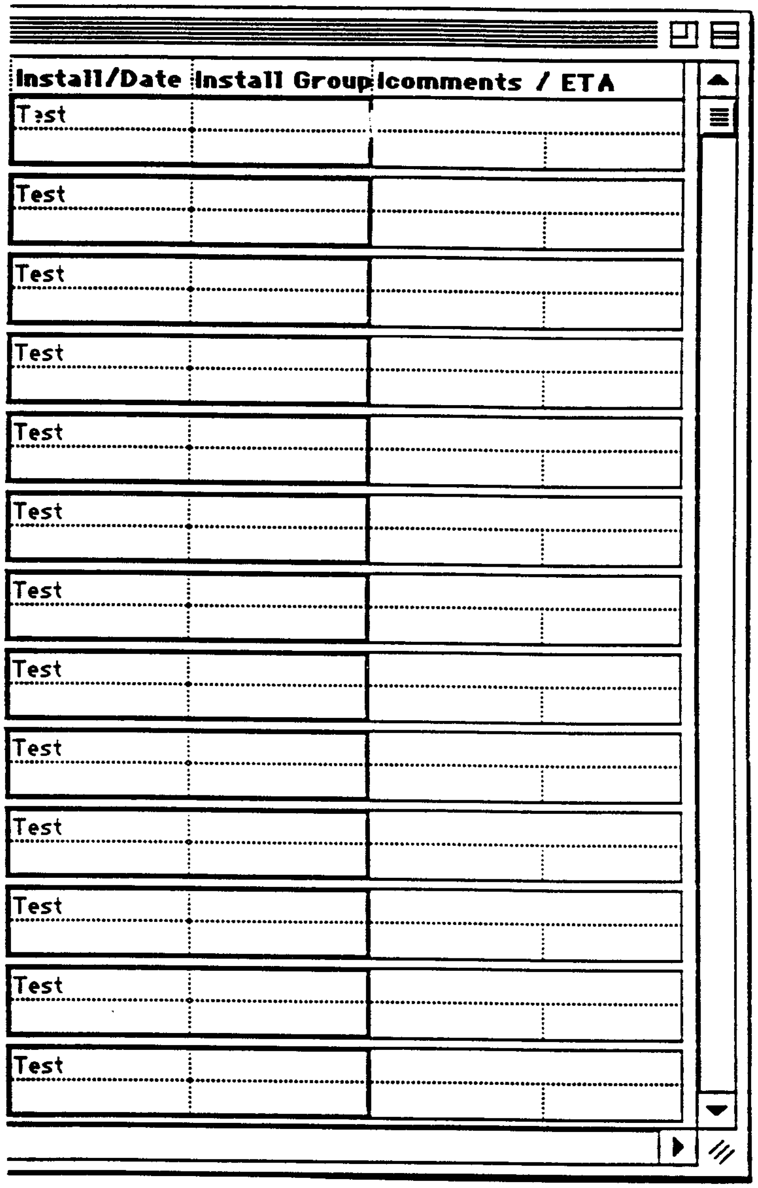
FIG. 148 A



Items Sold: 13138 of 131

Item sold Description / Mfr	Qty	Mfr/Vendor PN	Vendor/Conf #
VECTRA VL5 DT 5/166 MMX 16MB M2500 24XCD WFW W		D4594B*ABA	Merisel
HP PC'S	1	27809	6123589
TRNSCVR MICRO MOD 10B5		MIL4340M	Merisel
DIGI	1	62704	05517214
APEX 4.6GB PCI INT 5.25HH SCSI2 4.5MB 17MS W/SCSI I		APEX4.6GBPCI	TECHDATA
PINNACLE MICRO	1	630172	8791827
OMDR 4.6GB OPTL MED REWRITABLE		OMDR 4.6 GB	Merisel
PINNACLE	2	79769	05582632
PC-TRAC PS/2 TRACKBALL		PD-250	MicroD
MICROSPEED INC.	2	256226	50-81179
RECORDABLE BLANK CD 650MB 4X 1PK 74 MINUTES		CDQ-74A	MicroD
SONY CORPORATION OF AMERICA	20	314732	
LASERJET TONER 4 4M 4PLUS 4M PLUS YIELD-6800 PAG		92298A	Merisel
HP PRINTERS	2	40901	05517214
8-PORT 10BT ETH HUB		MIL4710H	Merisel
DIGI	1	02223	05517214
CDQ-74SZ RECORDABLE10-PK SILK SCREEN COMPATIBLE		CDQ-74SZ	TECHDATA
SONY MEDIA	1	803339	5591827
LS-120 DRIVE 3.5HH 120MB READ/WRITEABLE TO 1.44M		185061-001	MicroD
COMPAQ COMPUTER CORPORATION	1	437119	8400326
LASERJET 5SI 5SIMX TONER CARTRIDGE		C3909A	TECHDATA
HP PRINTERS	1	546065	5591827
DLT COMPACTAPE IIIXT 30GB 7PK		39-1050-11	TECHDATA
ADIC	1	048400	7384066
EZ135 135MB CARTRIDGE SNGL PK HARD DISK CART FOR		S107793/SQ135	TECHDATA
SYQUEST	10	789369	5591827

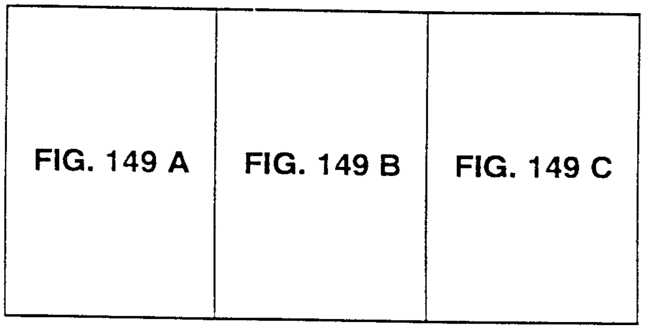
FIG. 148 B

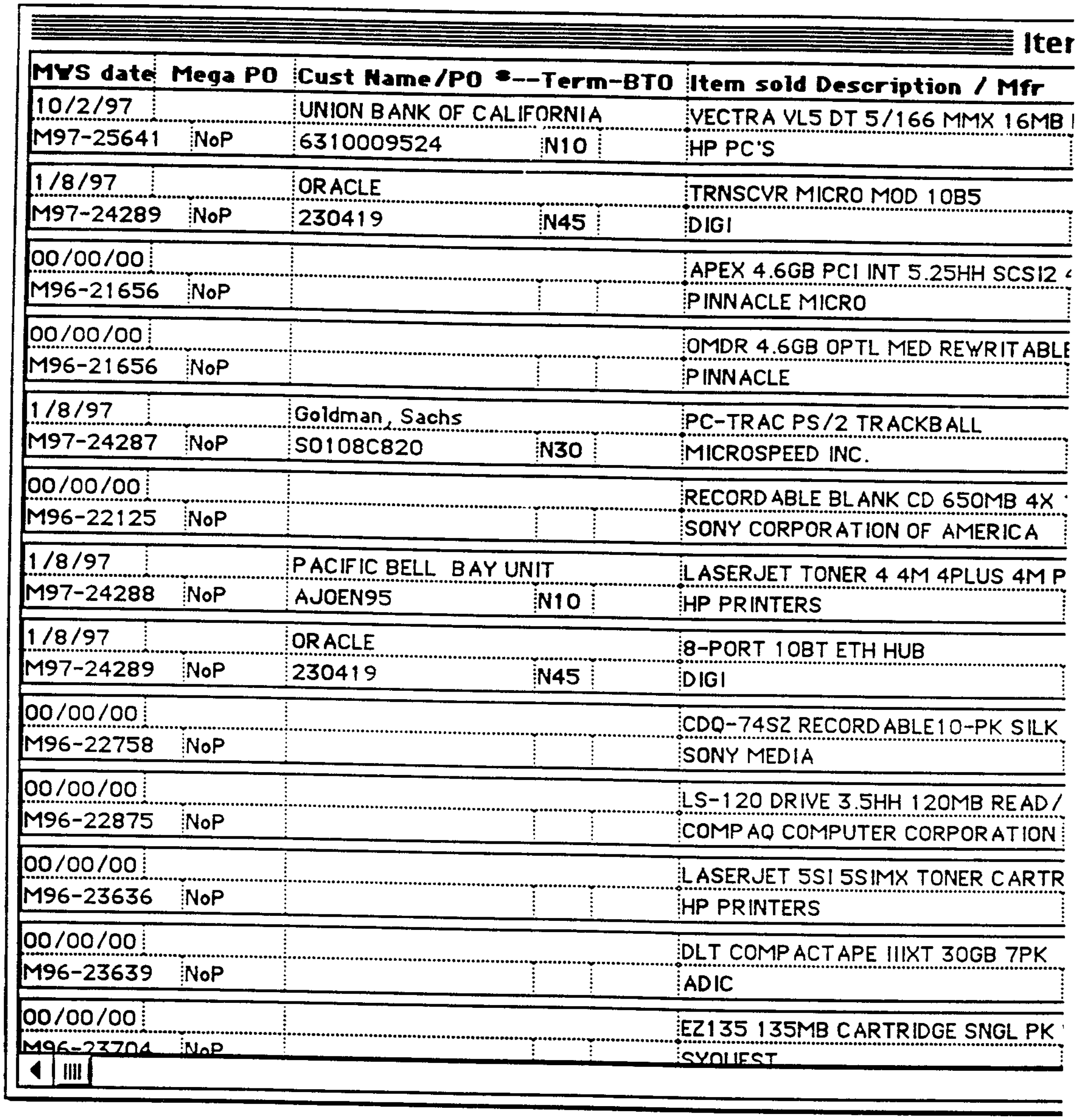


Install/Date	Install Group	comments / ETA
Test		
Test		
Test		
Test		
Test		
Test		
Test		
Test		
Test		
Test		
Test		
Test		
Test		

FIG. 148 C

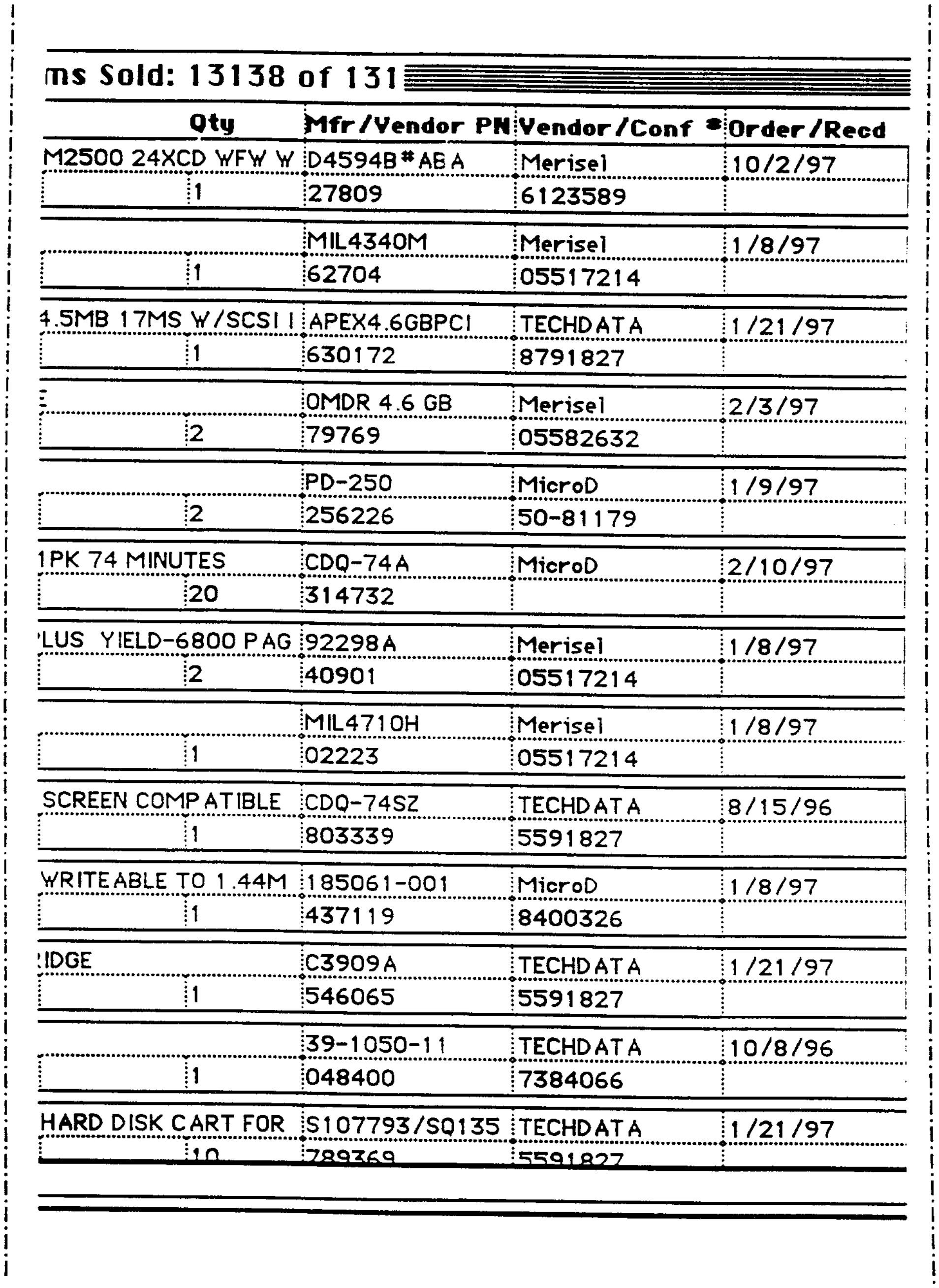
FIG. 149





MWS date	Mega PO	Cust Name/PO *--Term-BTO		Item sold Description / Mfr
10/2/97		UNION BANK OF CALIFORNIA		VECTRA VL5 DT 5/166 MMX 16MB
M97-25641	NoP	6310009524	N10	HP PC'S
1/8/97		ORACLE		TRNSCVR MICRO MOD 10B5
M97-24289	NoP	230419	N45	DIGI
00/00/00				APEX 4.6GB PCI INT 5.25HH SCSI2
M96-21656	NoP			PINNACLE MICRO
00/00/00				OMDR 4.6GB OPTL MED REWRITABL
M96-21656	NoP			PINNACLE
1/8/97		Goldman, Sachs		PC-TRAC PS/2 TRACKBALL
M97-24287	NoP	S0108C820	N30	MICROSPEED INC.
00/00/00				RECORDABLE BLANK CD 650MB 4X
M96-22125	NoP			SONY CORPORATION OF AMERICA
1/8/97		PACIFIC BELL BAY UNIT		LASERJET TONER 4 4M 4PLUS 4M P
M97-24288	NoP	AJOEN95	N10	HP PRINTERS
1/8/97		ORACLE		8-PORT 10BT ETH HUB
M97-24289	NoP	230419	N45	DIGI
00/00/00				CDQ-74SZ RECORDABLE10-PK SILK
M96-22758	NoP			SONY MEDIA
00/00/00				LS-120 DRIVE 3.5HH 120MB READ/
M96-22875	NoP			COMPAQ COMPUTER CORPORATION
00/00/00				LASERJET 5SI 5SIMX TONER CARTR
M96-23636	NoP			HP PRINTERS
00/00/00				DLT COMPACTAPE IIIXT 30GB 7PK
M96-23639	NoP			ADIC
00/00/00				EZ135 135MB CARTRIDGE SNGL PK
M96-23704	NoP			SYQUEST

FIG. 149 A



ms Sold: 13138 of 131

	Qty	Mfr/Vendor PN	Vendor/Conf #	Order/Recd
M2500 24XCD WFW W		D4594B#ABA	Merisel	10/2/97
	1	27809	6123589	
		MIL4340M	Merisel	1/8/97
	1	62704	05517214	
4.5MB 17MS W/SCSI I		APEX4.6GBPCI	TECHDATA	1/21/97
	1	630172	8791827	
		0MDR 4.6 GB	Merisel	2/3/97
	2	79769	05582632	
		PD-250	MicroD	1/9/97
	2	256226	50-81179	
1PK 74 MINUTES		CDQ-74A	MicroD	2/10/97
	20	314732		
LUS YIELD-6800 PAG		92298A	Merisel	1/8/97
	2	40901	05517214	
		MIL4710H	Merisel	1/8/97
	1	02223	05517214	
SCREEN COMPATIBLE		CDQ-74SZ	TECHDATA	8/15/96
	1	803339	5591827	
WRITEABLE TO 1.44M		185061-001	MicroD	1/8/97
	1	437119	8400326	
IDGE		C3909A	TECHDATA	1/21/97
	1	546065	5591827	
		39-1050-11	TECHDATA	10/8/96
	1	048400	7384066	
HARD DISK CART FOR		S107793/SQ135	TECHDATA	1/21/97
	10	789369	5591827	

FIG. 149 B

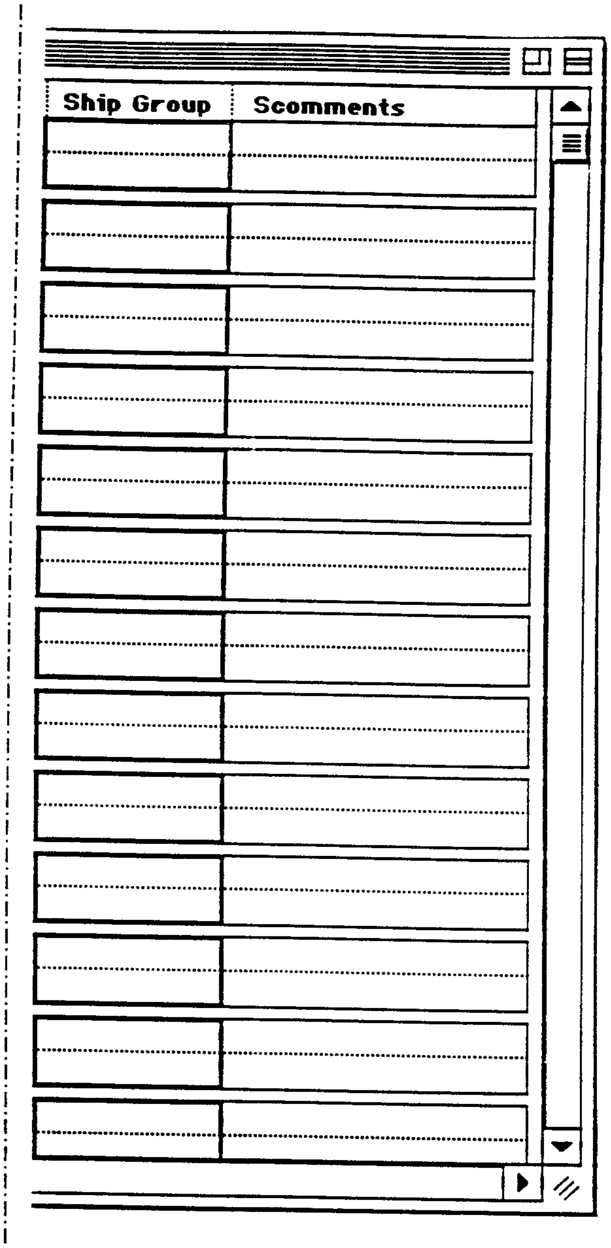


FIG. 149 C

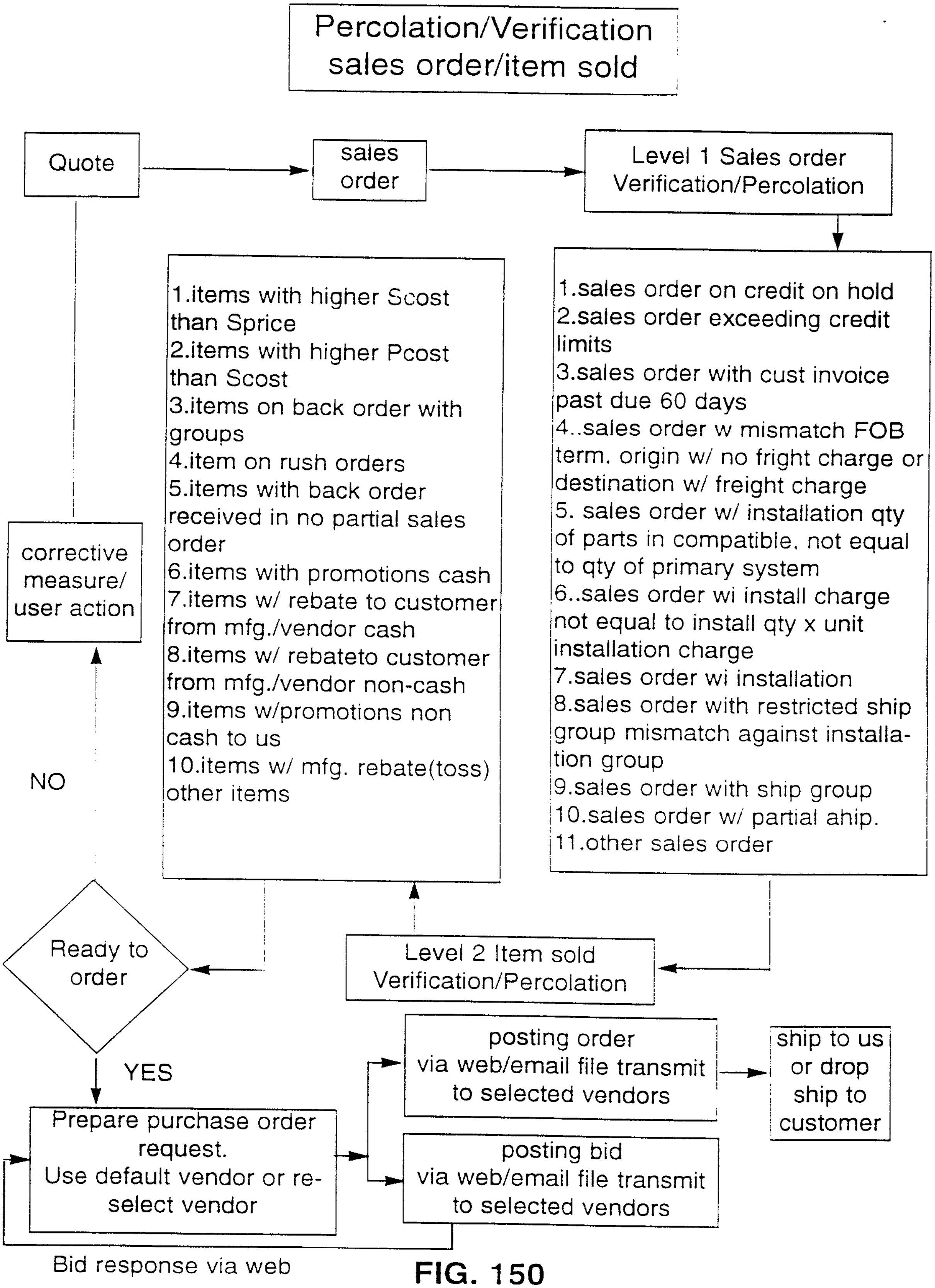

Percolation/Verification sales order/item sold
Quote
sales order
Level 1 Sales order Verification/Percolation
1.items with higher Scost than Sprice
2.items with higher Pcost than Scost
3.items on back order with groups
4.item on rush orders
5.items with back order received in no partial sales order
6.items with promotions cash
7.items w/ rebate to customer from mfg./vendor cash
8.items w/ rebateto customer from mfg./vendor non-cash
9.items w/promotions non cash to us
10.items w/ mfg. rebate(toss) other items
1.sales order on credit on hold
2.sales order exceeding credit limits
3.sales order with cust invoice past due 60 days
4..sales order w mismatch FOB term. origin w/ no fright charge or destination w/ freight charge
5. sales order w/ installation qty of parts in compatible, not equal to qty of primary system
6..sales order wi install charge not equal to install qty x unit installation charge
7.sales order wi installation
8.sales order with restricted ship group mismatch against installation group
9.sales order with ship group
10.sales order w/ partial ahip.
11.other sales order
corrective measure/ user action
NO
Ready to order
Level 2 Item sold Verification/Percolation
YES
posting order via web/email file transmit to selected vendors
ship to us or drop ship to customer
Prepare purchase order request. Use default vendor or re-select vendor
posting bid via web/email file transmit to selected vendors
Bid response via web

FIG. 150

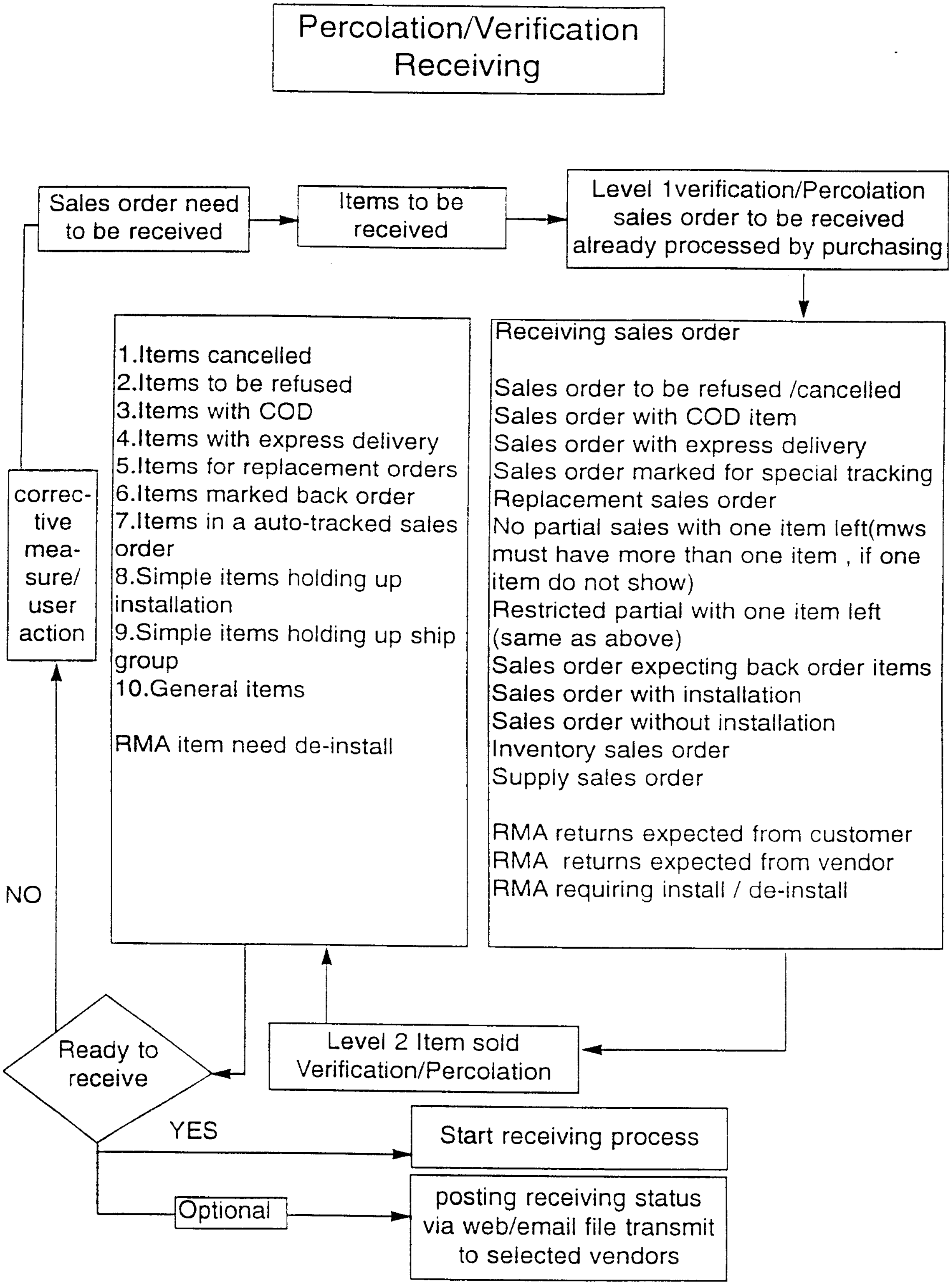

Percolation/Verification Receiving
Sales order need to be received
Items to be received
Level 1verification/Percolation sales order to be received already processed by purchasing
1.Items cancelled
2.Items to be refused
3.Items with COD
4.Items with express delivery
5.Items for replacement orders
6.Items marked back order
7.Items in a auto-tracked sales order
8.Simple items holding up installation
9.Simple items holding up ship group
10.General items
RMA item need de-install
Receiving sales order
Sales order to be refused /cancelled
Sales order with COD item
Sales order with express delivery
Sales order marked for special tracking
Replacement sales order
No partial sales with one item left(mws must have more than one item , if one item do not show)
Restricted partial with one item left (same as above)
Sales order expecting back order items
Sales order with installation
Sales order without installation
Inventory sales order
Supply sales order
RMA returns expected from customer
RMA returns expected from vendor
RMA requiring install / de-install
correc-tive mea-sure/ user action
NO
Ready to receive
Level 2 Item sold Verification/Percolation
YES
Start receiving process
Optional
posting receiving status via web/email file transmit to selected vendors

FIG. 151

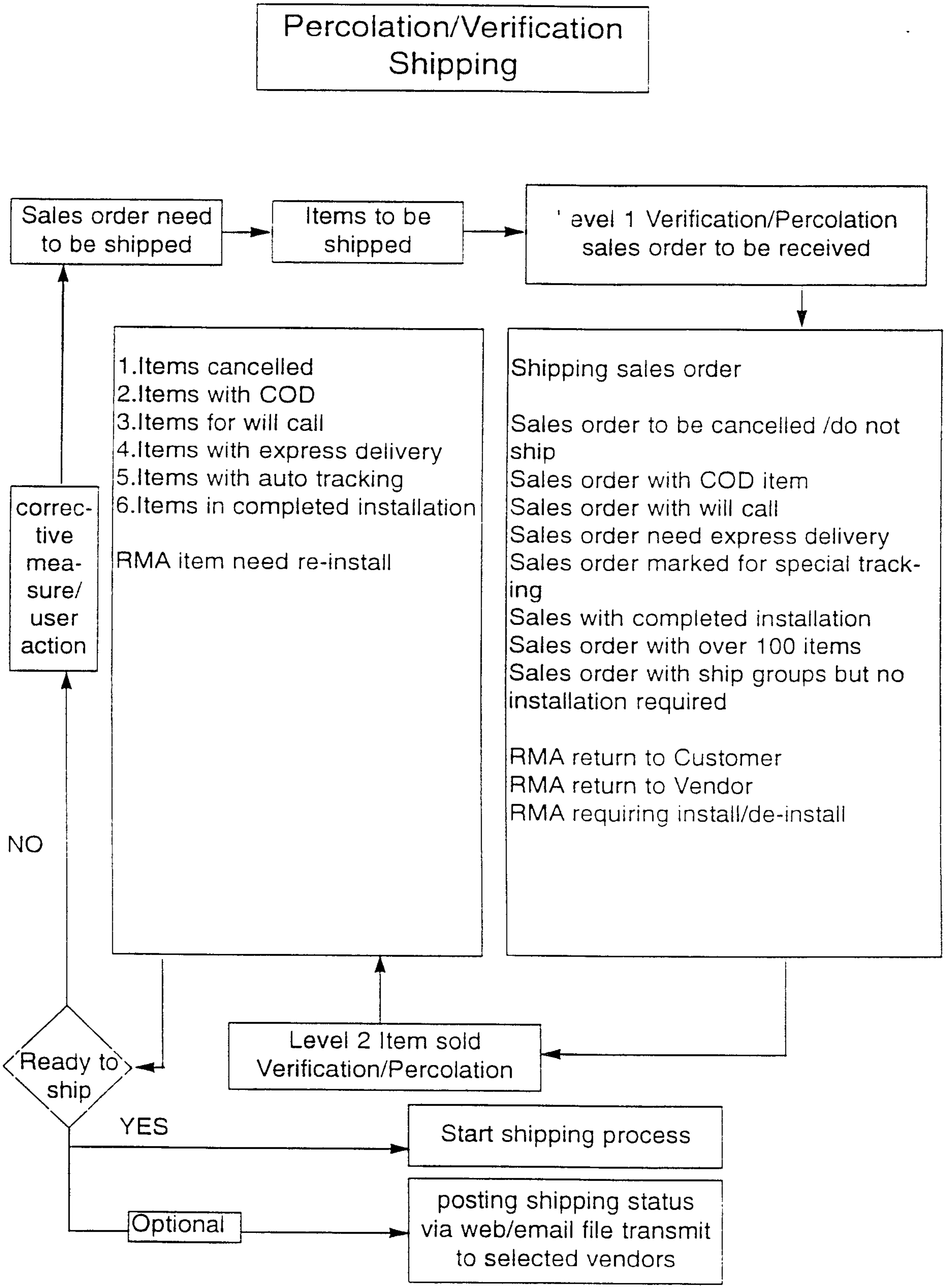

Percolation/Verification Shipping
Sales order need to be shipped
Items to be shipped
Level 1 Verification/Percolation sales order to be received
1.Items cancelled
2.Items with COD
3.Items for will call
4.Items with express delivery
5.Items with auto tracking
6.Items in completed installation
RMA item need re-install
Shipping sales order
Sales order to be cancelled /do not ship
Sales order with COD item
Sales order with will call
Sales order need express delivery
Sales order marked for special tracking
Sales with completed installation
Sales order with over 100 items
Sales order with ship groups but no installation required
RMA return to Customer
RMA return to Vendor
RMA requiring install/de-install
corrective measure/ user action
NO
Ready to ship
Level 2 Item sold Verification/Percolation
YES
Start shipping process
Optional
posting shipping status via web/email file transmit to selected vendors

FIG. 152

Percolation/Verification Installation/Assemble

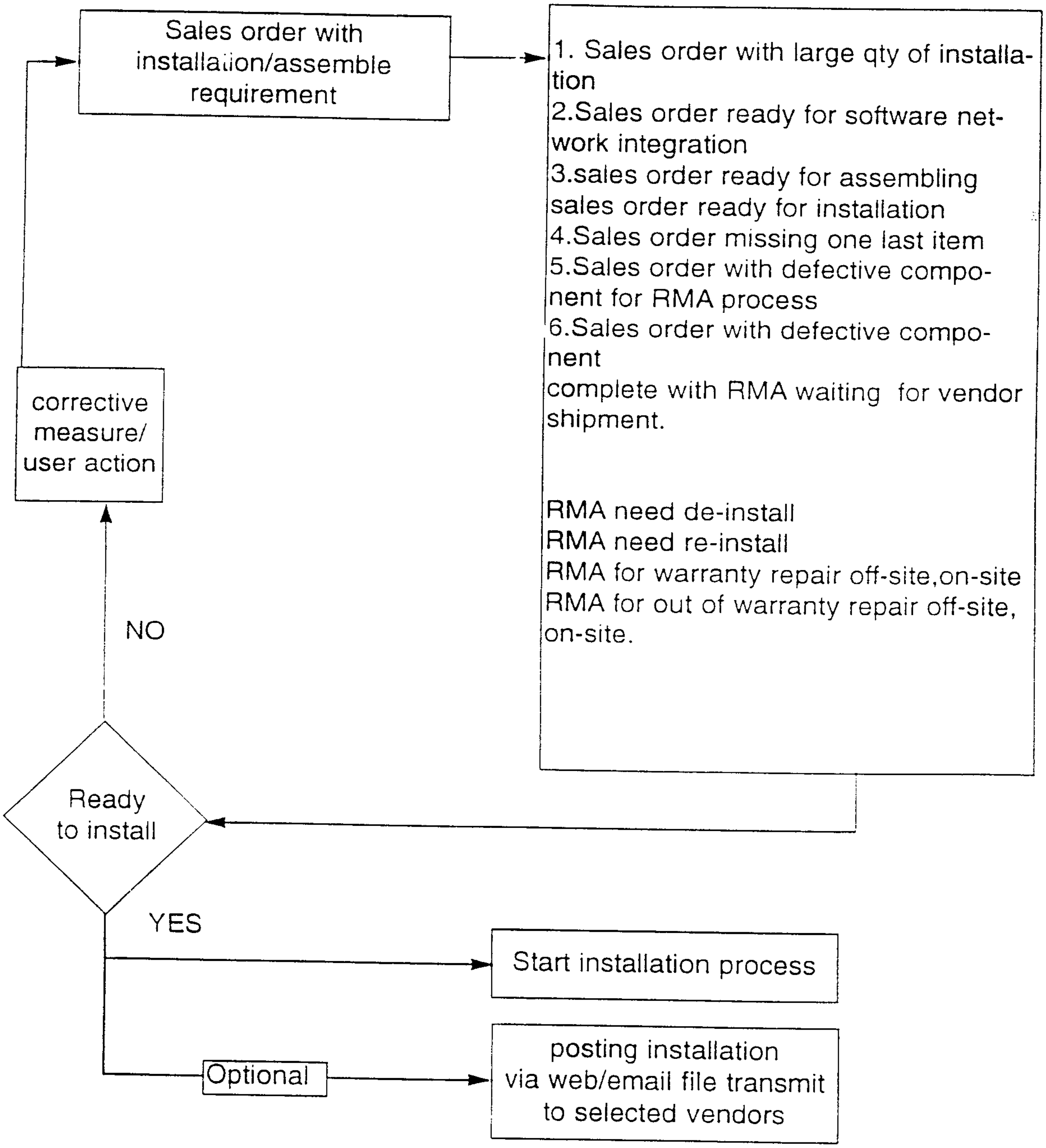

Sales order with installation/assemble requirement
1. Sales order with large qty of installation
2.Sales order ready for software network integration
3.sales order ready for assembling
sales order ready for installation
4.Sales order missing one last item
5.Sales order with defective component for RMA process
6.Sales order with defective component
complete with RMA waiting for vendor shipment.
RMA need de-install
RMA need re-install
RMA for warranty repair off-site,on-site
RMA for out of warranty repair off-site, on-site.
corrective measure/ user action
NO
Ready to install
YES
Start installation process
Optional
posting installation via web/email file transmit to selected vendors

FIG. 153

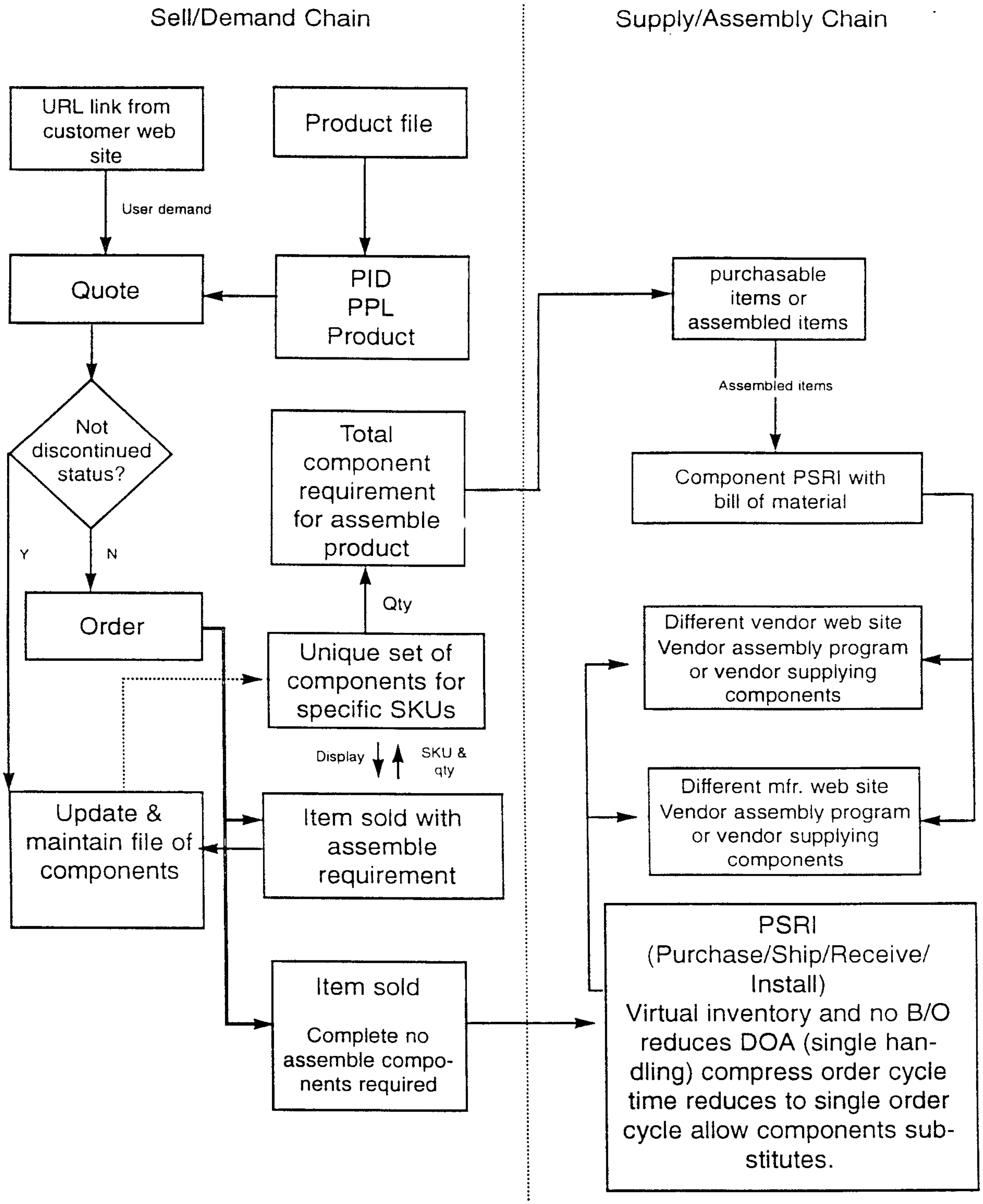

Sell/Demand Chain
Supply/Assembly Chain
URL link from customer web site
User demand
Product file
Quote
PID
PPL
Product
Not discontinued status?
Y
N
Order
Total component requirement for assemble product
Qty
Unique set of components for specific SKUs
Display
SKU & qty
Update & maintain file of components
Item sold with assemble requirement
Item sold
Complete no assemble components required
purchasable items or assembled items
Assembled items
Component PSRI with bill of material
Different vendor web site Vendor assembly program or vendor supplying components
Different mfr. web site Vendor assembly program or vendor supplying components
PSRI (Purchase/Ship/Receive/Install) Virtual inventory and no B/O reduces DOA (single handling) compress order cycle time reduces to single order cycle allow components substitutes.

FIG. 154

Task	Cust. Price update	Cust. Quote	Cust. Order	Cust. Report	Cust. RMA	Cust. Service & Repair	Cust. Shipping	Cust. Tracking	Cust. Invoice	Cust. Cr. memo	Cust. Payment	Cust. Security	Cust. Access group	Cust. Business Activities
Corporate Y/N selection	Frequency Daily	Create	Place	RMA customer not shipped	Create	On-site	Method UPS FedEx AirBorne Truck	Serial #	Retrieve	Issued Internal External	Retrieve	Self	Supervisor Access List name	Busiest Period Week Month
	Weekly	1. ___ 2. ___ 3. ___	1. ___ 2. ___ 3. ___	RMA cust not received	Save/ retrieve	Off-site		$ limit Per tracking	Fax		Credit card	Vendor	1. ___ 2. ___ 3. ___	
	Monthly	Save/ retrieve	Addendum	RMA summary	Modify	Labor $ on site	Pick up	Duration	Mail		Cr. card frequency limit	Encryption	Universal Access	Slowest Period Week Month
	Minimum $ update $ ___	1. ___ 2. ___ 3. ___	1. ___ 2. ___ 3. ___	PO summary	Submit	Labor $ off site	Hand Carry	Qty limit Per tracking	Web download		Cr. card $ limit	SET	Individual Access	
	Show new product	Modify	Retrieve	B/O summary	$ limit Per RMA	Part stock	Deliver within building		Cr. apply to inv.		Check	Security Certificate		
	Show discount product	1. ___ 2. ___ 3. ___	1. ___ 2. ___ 3. ___	Tracking report	Qty limit Per day	Part charge	Drop Ship		Replace invoice		EFT $ limit	VPN		
	Pricing update	Submit	Cancel	Period limit	Frequency limit RMA/day	Duration 2, 4, 8, 24 48, 72 hrs	Destination		Frequency Weekly Daily		Weekly	Inside Firewall		
	Cost plus Fixed price	$ limit per quote	$ limit Per order	Qty report	Standard guide	Service contract	Origin				Daily			
	mfr. specific	Qty limit Per day	Qty limit Per day	Ship report	Auto approved	1, 2, 3 yr	Loading Dock				Monthly			
	Show all product	Frequency limit Quote/day	Frequency limit Order/day	Rec'd report	Packing slip		Packing slip							
	PPL	Archive limit Per month	Tracking order Per month	Acct. invoice			Partial							
	PID	Eval	Eval	Payment			Label Detail general							
	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file
	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate

FIG. 155

Task	Vendor Price update	Vednor Quote	Vendor Order	Vendor Report	Vendor RMA	Vendor Service & Repair	Vendor Shipping	Vendor Tracking	Vendor Invoice	Vendor Cr. memo	Vendor Payment	Vendor Security	Vendor Access group	Vendor Business Activities
Corporate Y/N selection	Frequency Daily	Create	Place	RMA customer not shipped	Create	On-site	Method UPS FedEx AirBorne Truck	Serial #	Retrieve	Issued Internal External	Retrieve	Self	Supervisor Access List name	Busiest Period Week Month
	Weekly	1. ______ 2. ______ 3. ______	1. ______ 2. ______ 3. ______	RMA cust.not received	Save/ retrieve	Off-site		$ limit Per tracking	Fax		Credit card	Vendor	1. ______ 2. ______ 3. ______	
	Monthly	Save/ retrieve	Addendum	RMA summary	Modify	Labor $ on site	Pick up	Duration	Mail		Cr. card frequency limit	Encryption	Universal Access	Slowest Period Week Month
	Minimum $ update $ ____	1. ______ 2. ______ 3. ______	1. ______ 2. ______ 3. ______	PO summary	Submit	Labor $ off site	Hand Carry	Qty limit Per tracking	Web download		Cr. card $ limit	SET	Individual Access	
	Show new product	Modify	Retrieve	B/O summary	$ limit Per RMA	Part stock	Deliver within building		Cr. apply to inv.		Check	Security Certificate		
	Show discount product	1. ______ 2. ______ 3. ______	1. ______ 2. ______ 3. ______	Tracking report	Qty limit Per day	Part charge	Drop Ship		Replace invoice		EFT $ limit	VPN		
	Pricing update	Submit	Cancel	Period limit	Frequency limit RMA/day	Duration 2, 4, 8, 24, 48, 72 hrs	Destination		Frequency Weekly Daily		Weekly	Inside Firewall		
	Cost plus Fixed price	$ limit per quote	$ limit Per order	Qty report	Standard guide	Service contract	Origin				Daily			
	mfr. specific	Qty limit Per day	Qty limit Per day	Ship report	Auto approved	1, 2, 3 yr	Loading Dock				Monthly			
	Show all product	Frequency limit Quote/day	Frequency limit Order/day	Rec'd report	Packing slip		Packing slip							
	PPL	Archive limit Per month	Tracking order Per month	Acct. invoice			Partial							
	PID	Eval	Eval	Payment			Label Detail general							
	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file	Digital file
	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate	Activate

FIG. 156

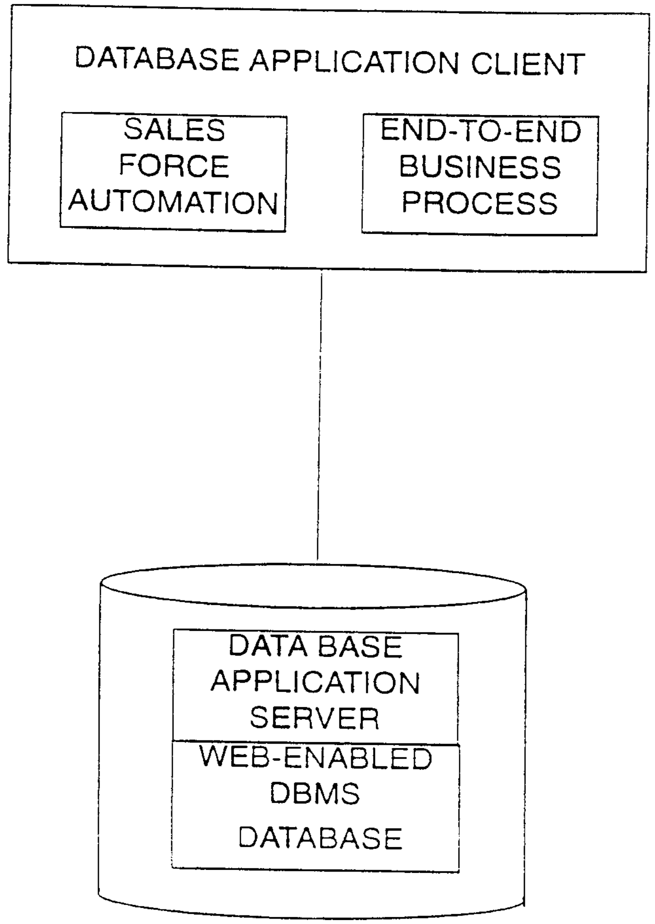
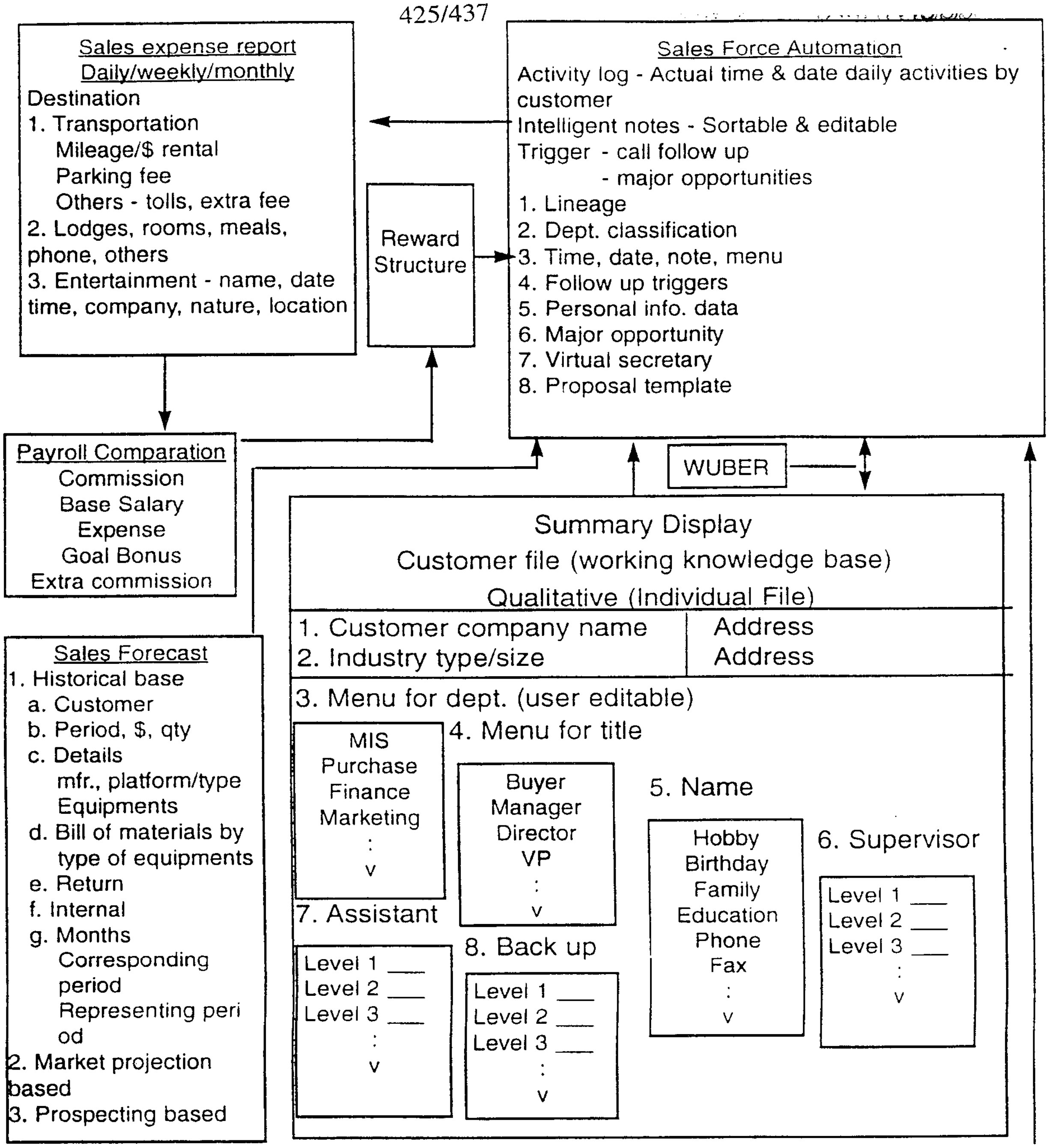

DATABASE APPLICATION CLIENT
SALES FORCE AUTOMATION
END-TO-END BUSINESS PROCESS
DATA BASE APPLICATION SERVER
WEB-ENABLED DBMS
DATABASE

FIG. 157

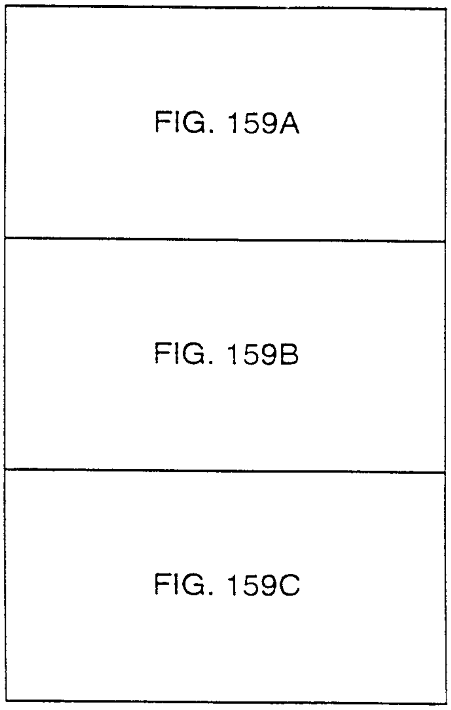


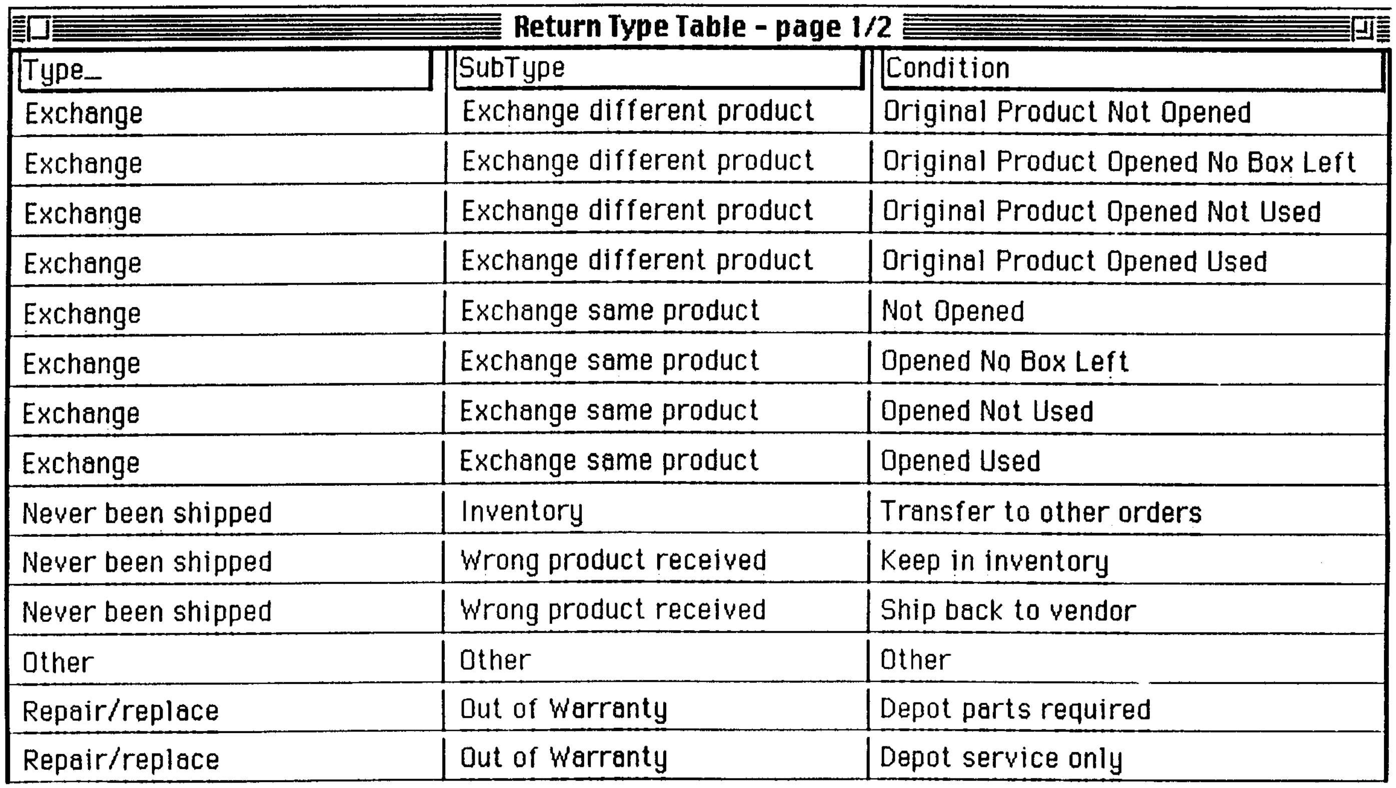
Activity summary display quantitative (result knowledge base)

	Last year	This year	Last month	Max pick month	Min.	B/O	RMA	Ship to date	Cancel orders	Payment history	Cust. inv. history	Ship. history	RMA history
$ Sales													
$ PO													
Qty													
Durati on													

FIG. 158

FIG. 159



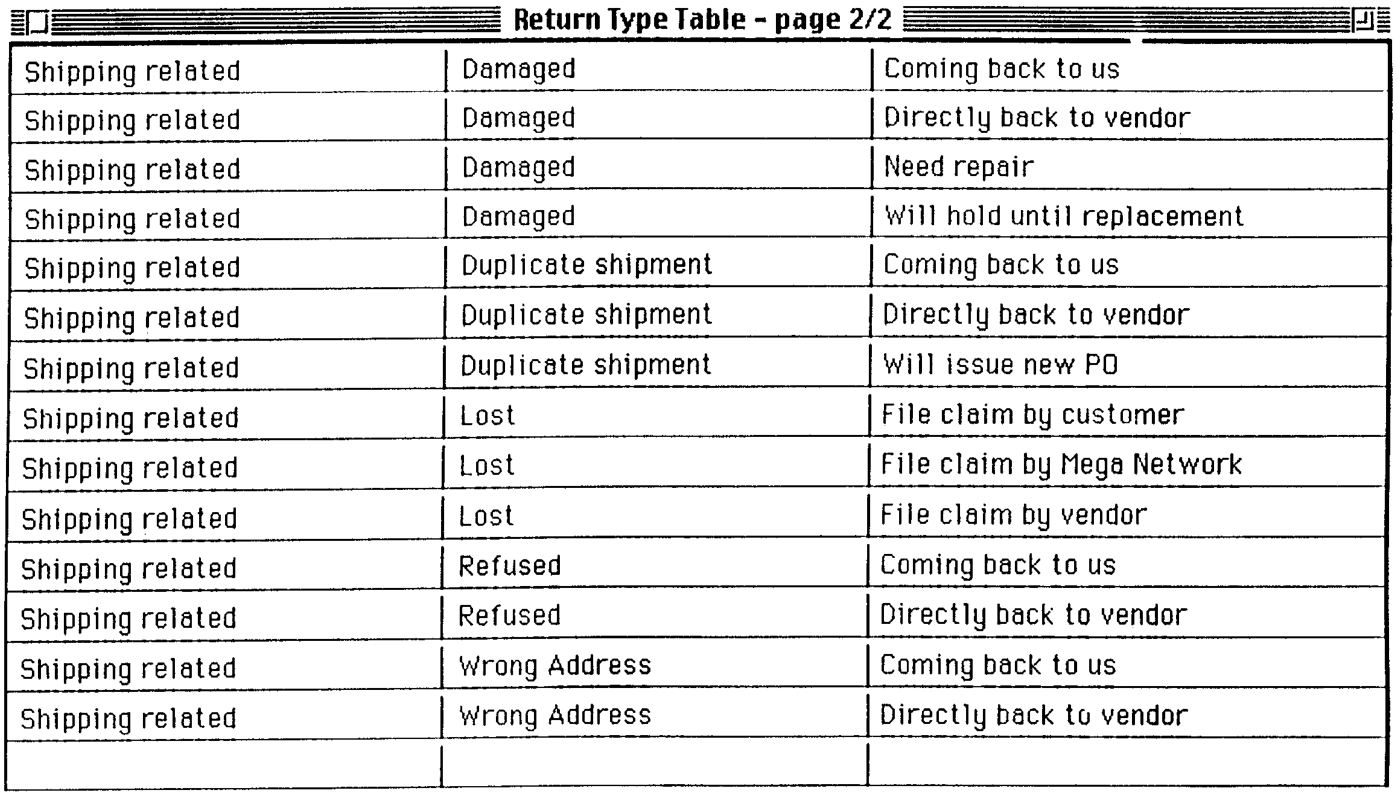


Type_	SubType	Condition
Exchange	Exchange different product	Original Product Not Opened
Exchange	Exchange different product	Original Product Opened No Box Left
Exchange	Exchange different product	Original Product Opened Not Used
Exchange	Exchange different product	Original Product Opened Used
Exchange	Exchange same product	Not Opened
Exchange	Exchange same product	Opened No Box Left
Exchange	Exchange same product	Opened Not Used
Exchange	Exchange same product	Opened Used
Never been shipped	Inventory	Transfer to other orders
Never been shipped	Wrong product received	Keep in inventory
Never been shipped	Wrong product received	Ship back to vendor
Other	Other	Other
Repair/replace	Out of Warranty	Depot parts required
Repair/replace	Out of Warranty	Depot service only

FIG. 159 A

Repair/replace	Out of Warranty	On site parts required
Repair/replace	Out of Warranty	On site service only
Repair/replace	Under Warranty	Depot parts required
Repair/replace	Under Warranty	Depot service only
Repair/replace	Under Warranty	On site parts required
Repair/replace	Under Warranty	On site service only
Return for credit	Credit card	Not Opened
Return for credit	Credit card	Opened No Box Left
Return for credit	Credit card	Opened Not Used
Return for credit	Credit card	Opened Used
Return for credit	Credit memo	Not Opened
Return for credit	Credit memo	Opened No Box Left
Return for credit	Credit memo	Opened Not Used
Return for credit	Credit memo	Opened Used

FIG. 159 B



Shipping related	Damaged	Coming back to us
Shipping related	Damaged	Directly back to vendor
Shipping related	Damaged	Need repair
Shipping related	Damaged	Will hold until replacement
Shipping related	Duplicate shipment	Coming back to us
Shipping related	Duplicate shipment	Directly back to vendor
Shipping related	Duplicate shipment	Will issue new PO
Shipping related	Lost	File claim by customer
Shipping related	Lost	File claim by Mega Network
Shipping related	Lost	File claim by vendor
Shipping related	Refused	Coming back to us
Shipping related	Refused	Directly back to vendor
Shipping related	Wrong Address	Coming back to us
Shipping related	Wrong Address	Directly back to vendor

FIG. 159 C

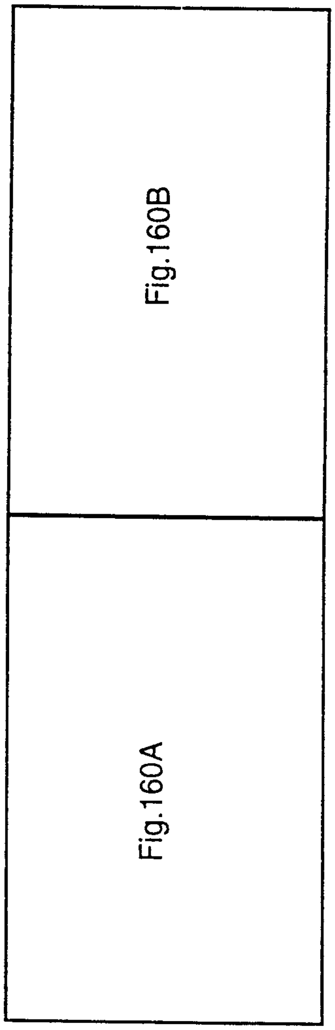
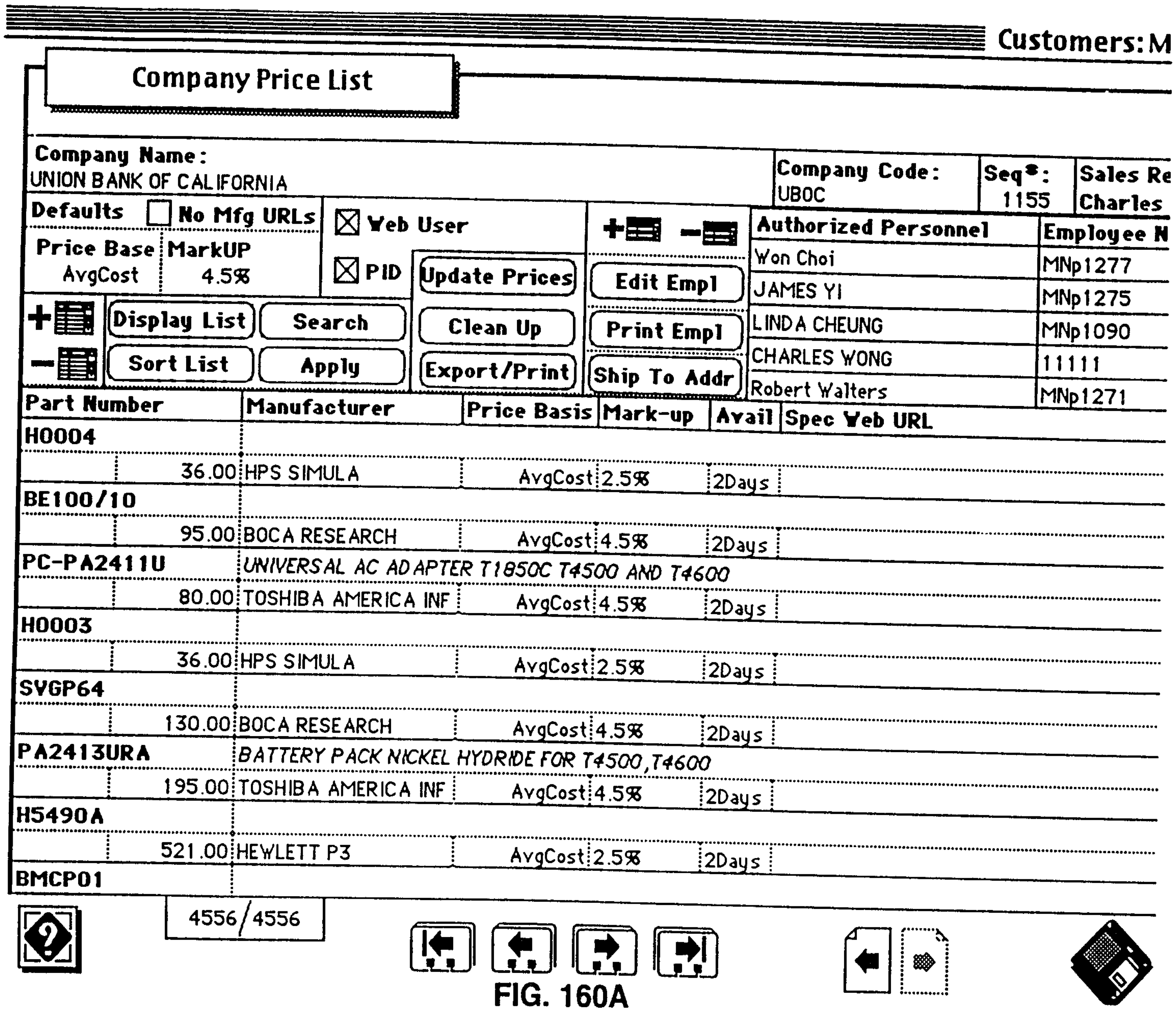


Fig. 160



Company Name:
UNION BANK OF CALIFORNIA

Company Code: UBOC

Seq#: 1155

Sales Re Charles

Defaults ☐ No Mfg URLs ☒ Web User ☒ PID

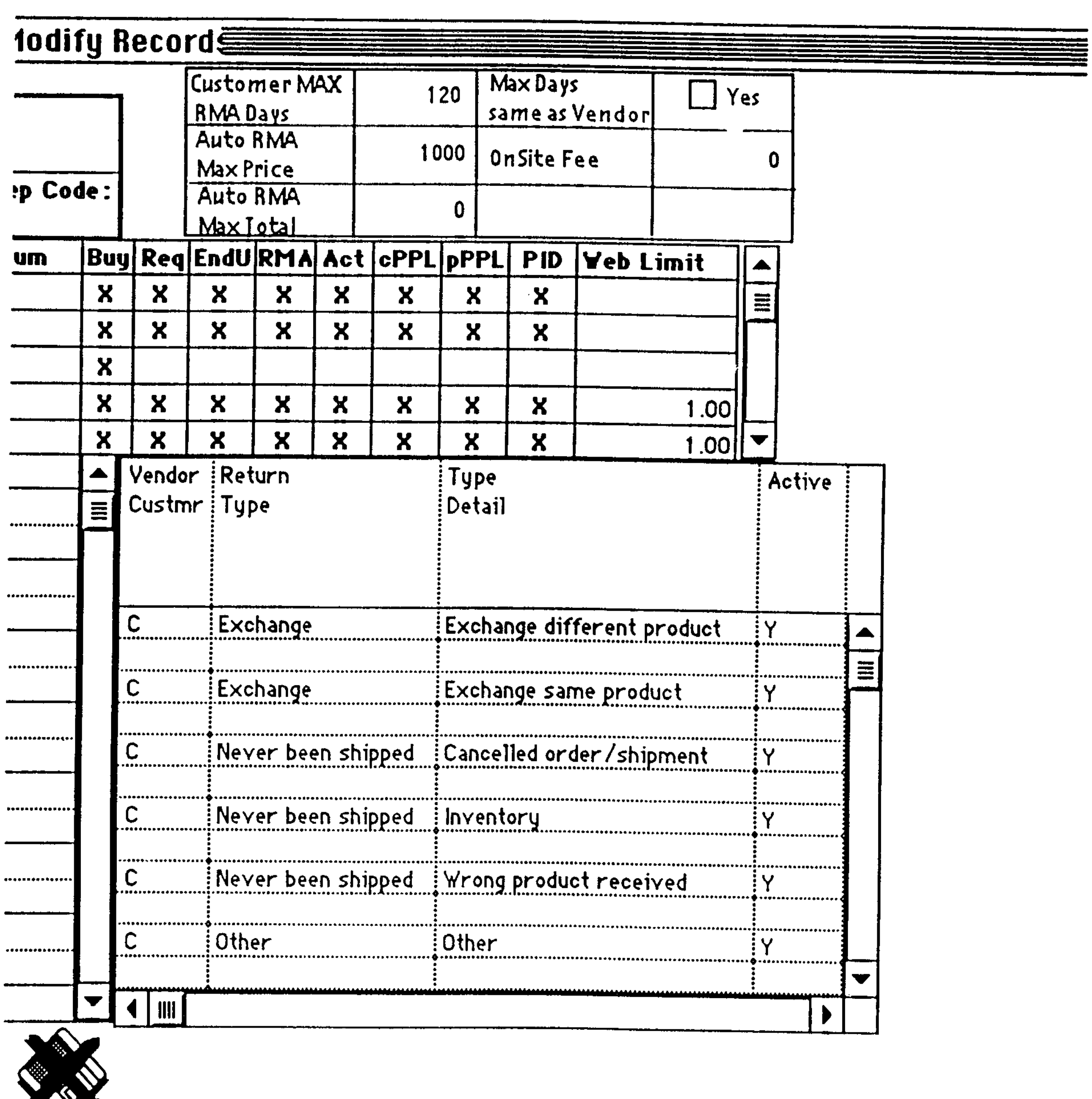
Price Base: AvgCost

MarkUP: 4.5%

Authorized Personnel	Employee N
Won Choi	MNp1277
JAMES YI	MNp1275
LINDA CHEUNG	MNp1090
CHARLES WONG	11111
Robert Walters	MNp1271

Part Number	Manufacturer	Price Basis	Mark-up	Avail	Spec Web URL
H0004					
36.00	HPS SIMULA	AvgCost	2.5%	2Days	
BE100/10					
95.00	BOCA RESEARCH	AvgCost	4.5%	2Days	
PC-PA2411U	*UNIVERSAL AC ADAPTER T1850C T4500 AND T4600*				
80.00	TOSHIBA AMERICA INF	AvgCost	4.5%	2Days	
H0003					
36.00	HPS SIMULA	AvgCost	2.5%	2Days	
SVGP64					
130.00	BOCA RESEARCH	AvgCost	4.5%	2Days	
PA2413URA	*BATTERY PACK NICKEL HYDRIDE FOR T4500,T4600*				
195.00	TOSHIBA AMERICA INF	AvgCost	4.5%	2Days	
H5490A					
521.00	HEWLETT P3	AvgCost	2.5%	2Days	
BMCP01					

FIG. 160A



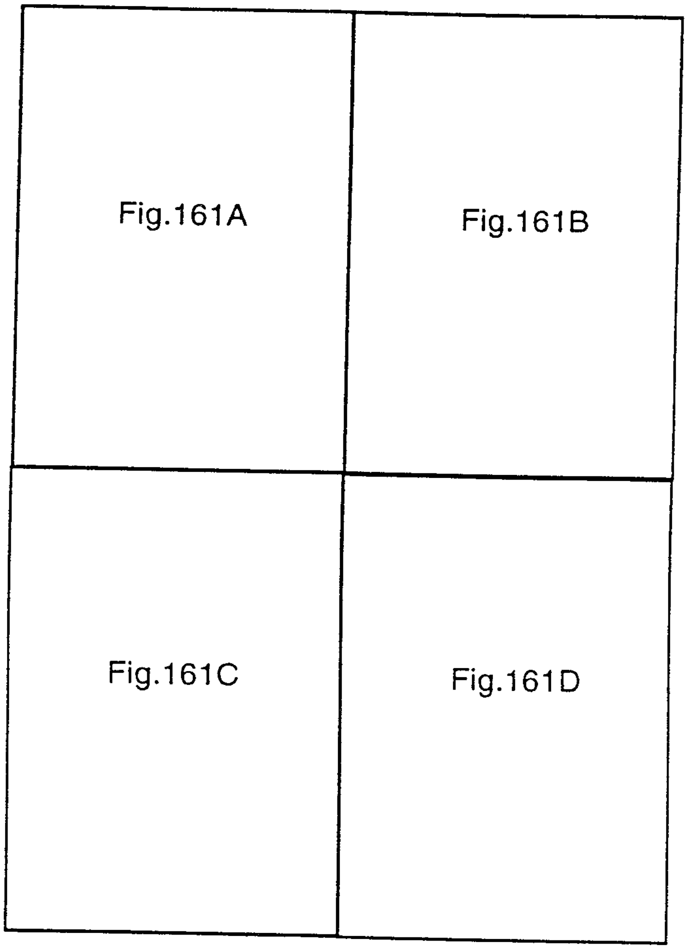
Customer MAX RMA Days	120	Max Days same as Vendor	☐ Yes
Auto RMA Max Price	1000	OnSite Fee	0
Auto RMA Max Total	0		

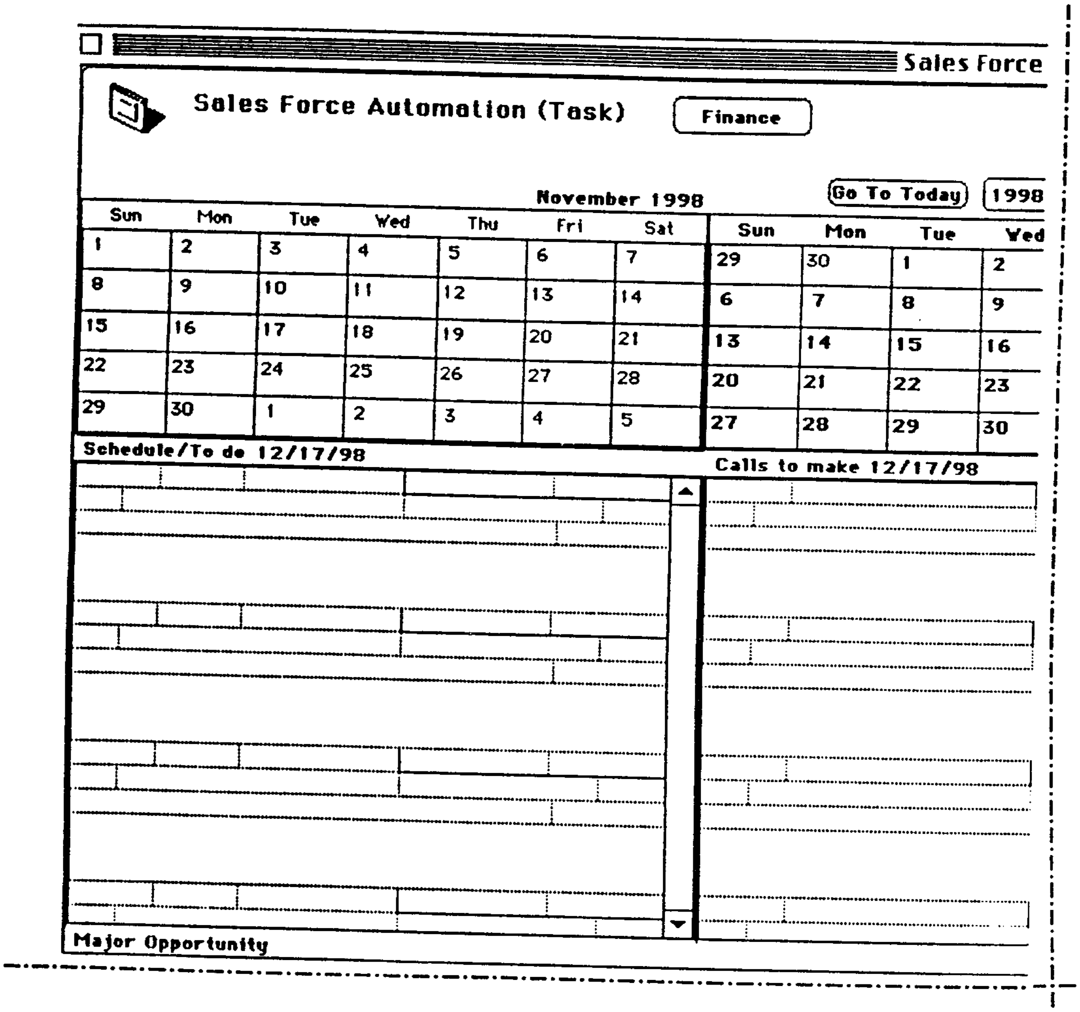
um	Buy	Req	EndU	RMA	Act	cPPL	pPPL	PID	Web Limit
	X	X	X	X	X	X	X	X	
	X	X	X	X	X	X	X	X	
	X								
	X	X	X	X	X	X	X	X	1.00
	X	X	X	X	X	X	X	X	1.00

Vendor Custmr	Return Type	Type Detail	Active
C	Exchange	Exchange different product	Y
C	Exchange	Exchange same product	Y
C	Never been shipped	Cancelled order/shipment	Y
C	Never been shipped	Inventory	Y
C	Never been shipped	Wrong product received	Y
C	Other	Other	Y

FIG. 160B

Fig. 161





November 1998

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

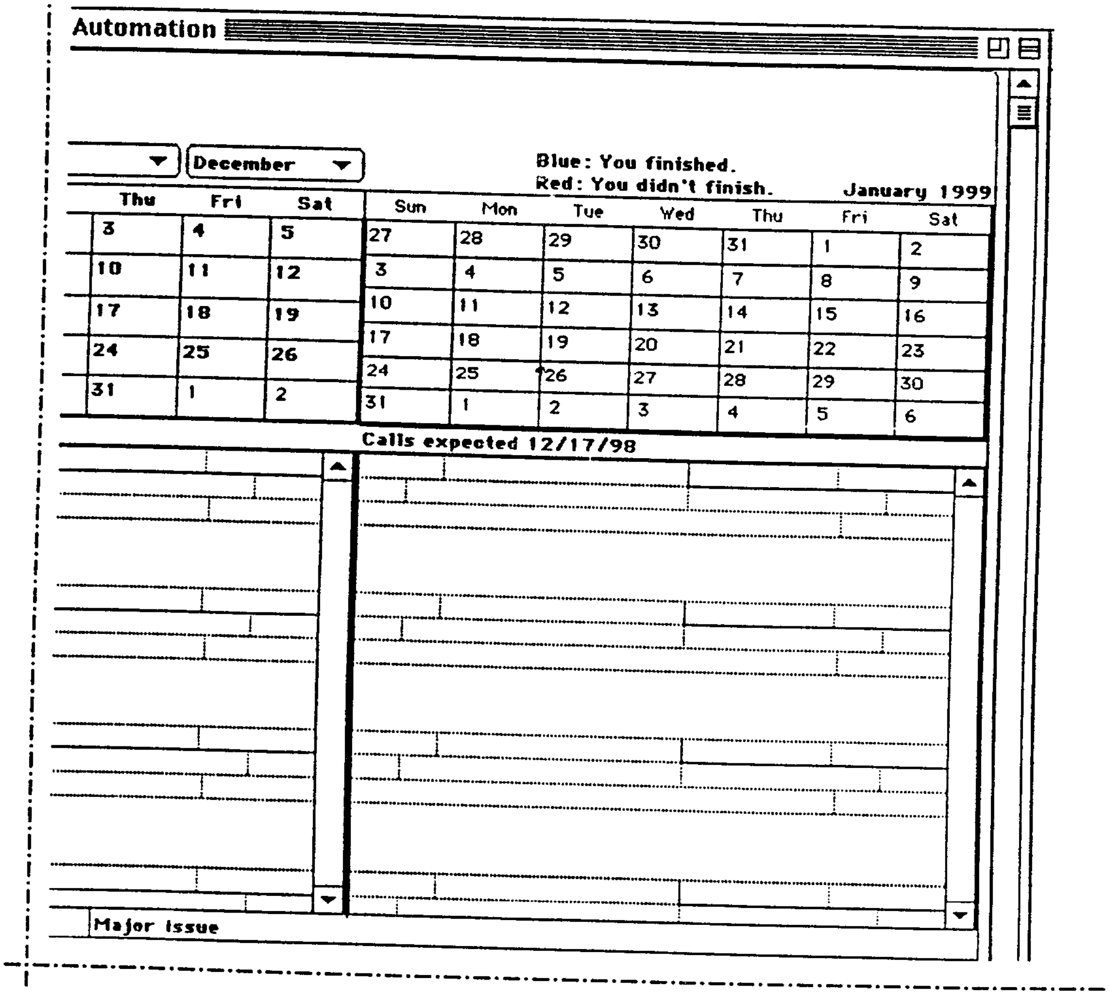
Sun	Mon	Tue	Wed
29	30	1	2
6	7	8	9
13	14	15	16
20	21	22	23
27	28	29	30

Schedule/To do 12/17/98

Calls to make 12/17/98

Major Opportunity

FIG. 161A



Blue: You finished.
Red: You didn't finish.

Thu	Fri	Sat
3	4	5
10	11	12
17	18	19
24	25	26
31	1	2

January 1999

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

Calls expected 12/17/98

Major issue

FIG. 161B

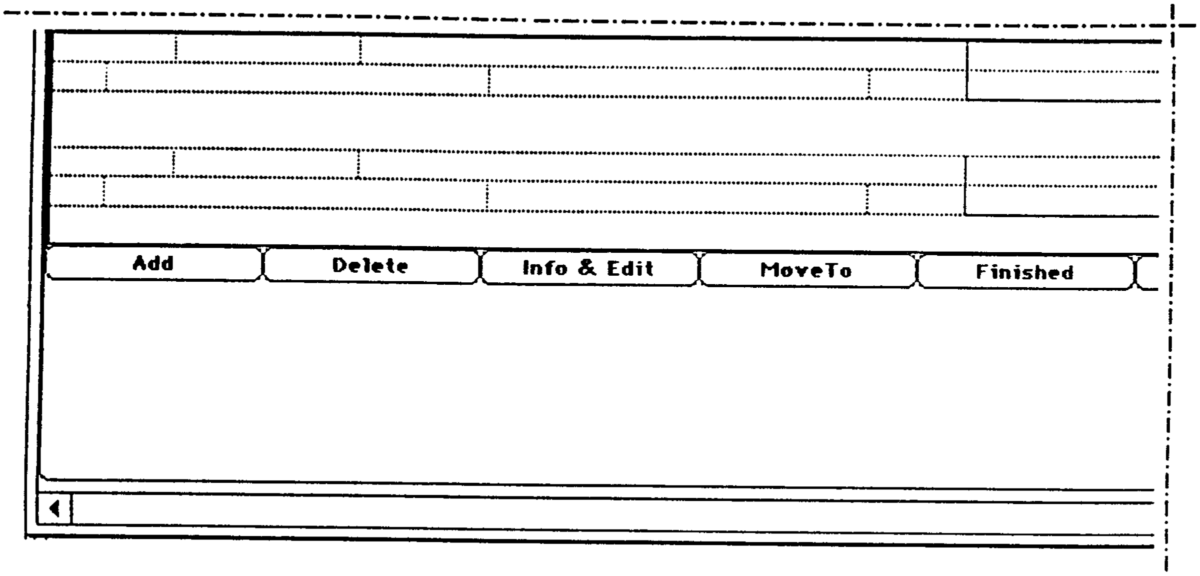


FIG. 161C

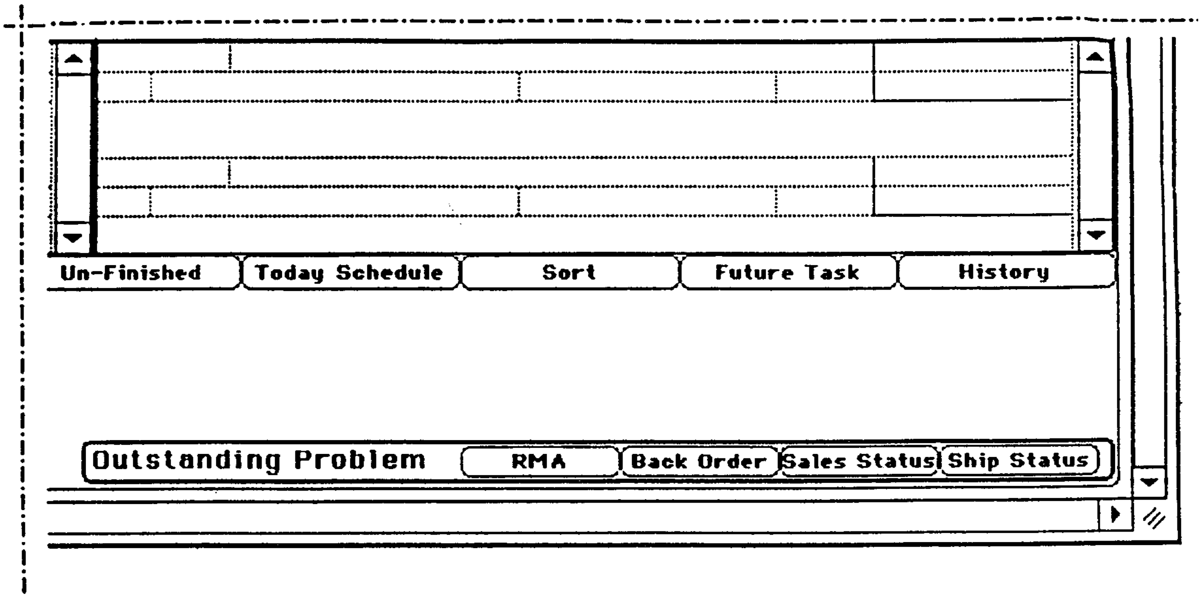

Un-Finished
Today Schedule
Sort
Future Task
History
Outstanding Problem
RMA
Back Order
Sales Status
Ship Status

FIG. 161D

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/27496

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 17/60, 15/46; G06K 5/00
US CL :705/34; 235/380; 364/468.02
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/34; 235/380; 364/468.02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS
integration,merging,single,singular,unbroken,undivided,database,web,internet,electronic,commerce,business,trade,industry

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,621,201 A (LANGHANS et al.) 15 April 1997, col. 16, lines 14-23	1-79
Y	US 5,311,438 A (SELLERS et al.) 10 May 1994, col. 70, lines 30-37, 48-52; co l. 71, lines 1-7.	1-79

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:
"A"	document defining the general state of the art which is not considered to be of particular relevance
"E"	earlier document published on or after the international filing date
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O"	document referring to an oral disclosure, use, exhibition or other means
"P"	document published prior to the international filing date but later than the priority date claimed
"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&"	document member of the same patent family

Date of the actual completion of the international search

02 MARCH 1999

Date of mailing of the international search report

09 APR 1999

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703) 305-3230

Authorized officer
RAQUEL ALVAREZ
Telephone No. (703) 305-2200